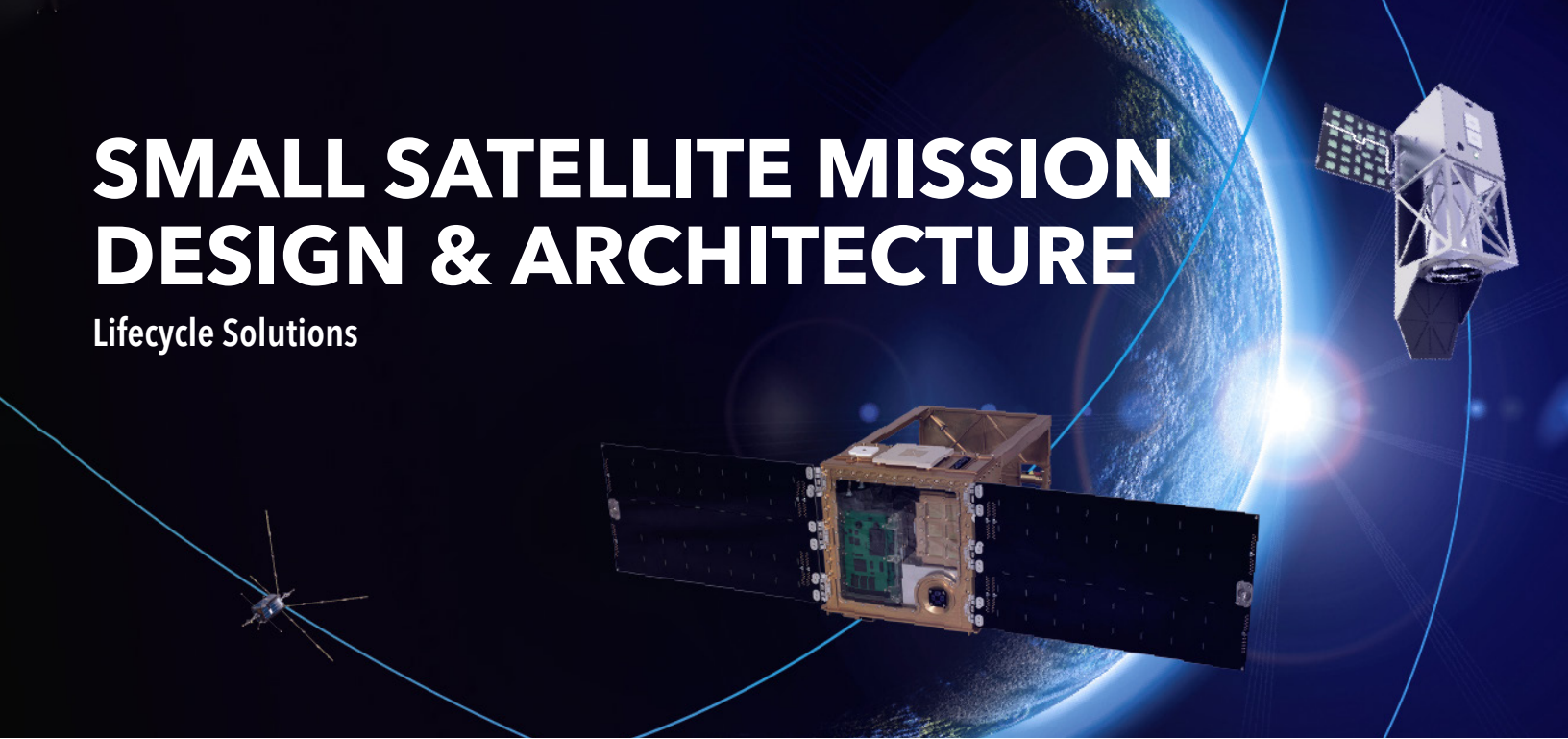


# SMALL SATELLITE MISSION DESIGN & ARCHITECTURE

Lifecycle Solutions



As a leading small satellite developer, the Space Dynamics Laboratory (SDL) provides full lifecycle support for satellites ranging in size from nano to ESPA class. As Government and industry continue to push the boundaries of technology with hybrid architectures, mega-constellations, rendezvous and proximity operations, and formation flying, they need small satellite experts with proven experience to ensure mission success.

## HERITAGE

With over 65 years of experience developing remote sensing solutions, SDL is tackling some of the toughest challenges in the nation. SDL's engineering expertise encompasses electrical; software; optical; guidance, navigation, and control; mechanical; structural; thermal; systems engineering; and calibration.

SDL can support electro-optical, infrared, radar, hyperspectral, communications, and environmental sensors for any mission type, including multi-vehicle, rendezvous and proximity operations, formation flying, and intelligence, reconnaissance, and surveillance.

## FACILITIES

SDL's on-site precision manufacturing and fabrication facilities are staffed by experienced engineers and designers, as well as fabrication and assembly, integration, and test specialists, to deliver parts that meet mission requirements. SDL's full array of expert services saves time and reduces risk and cost.

## OUR MISSION IS OUR CUSTOMER'S MISSION

As a University Affiliated Research Center (UARC), SDL is in a unique position to provide independent assessment and respond quickly to evolving requirements. SDL's innovative and reliable solutions include Government unlimited rights with no licensing fees.

As a trusted agent of the Government, SDL provides direct support to mission operations for NASA, National Science Foundation, and Department of Defense programs. This support includes pass planning, commanding, experiment plan execution, mission data processing, state-of-health monitoring, and data dissemination. We leverage our experience in designing and building systems to optimize mission operations.



**MISSION  
PLANNING &  
DEVELOPMENT**



**RELIABLE  
ENGINEERING  
SOLUTIONS**



**FABRICATION,  
INTEGRATION  
& TEST**



**MISSION  
OPERATIONS**

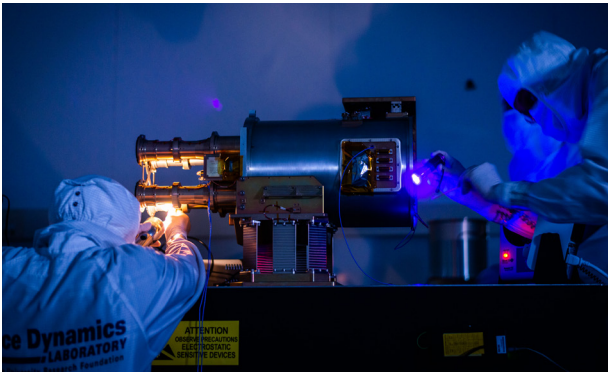


## MISSION PLANNING & DEVELOPMENT

- Mission architecture
- Concept development
- Requirements derivation & management
- Feasibility studies
- Mission cost estimation
- Independent technical evaluation
- Systems engineering
- Rendezvous & proximity operations

## RELIABLE ENGINEERING SOLUTIONS

- Small satellite buses in the nano to ESPA class range
- Lifecycle engineering solutions, from mission inception to end of life
- Payload design (optical, radio frequency & others)
- Spacecraft command & data handling
- Customized, one-of-a-kind components, including avionics, power systems, communications, camera systems, structures & mechanisms
- Navigation & analysis, including attitude determination & control systems (ADCS), navigation processing, orbital modeling, communication links & thermal control
- Modeling & simulation
- Cyber resiliency



## FABRICATION, INTEGRATION & TEST

- Small satellite testing facilities designed for miniaturized components, including ADCS, electrical power systems (EPS), communications, mass properties & hardware-in-the-loop testing
- On-site, state-of-the-art 6000 ft<sup>2</sup> machine shop
- Integration facilities, including ISO 5 & ISO 7 cleanrooms & ISO 8.5 high bays
- Contamination control facilities & expertise
- On-site electronics assembly laboratory
- Space qualification testing facilities, including vibration, EMI/EMC & thermal vacuum testing
- World-class calibration



## MISSION OPERATIONS

- Mission, spacecraft & payload operations
- Custom computational tools to validate command sequences
- Automated collection planning algorithms
- Command & control
- Ground terminal access
- Data exploitation solutions
- Enterprise ground services
- Automated personnel notification system
- GMSEC-compliant software
- Government unlimited rights with no licensing fees

