



# Space Systems & ISS Payload Integration

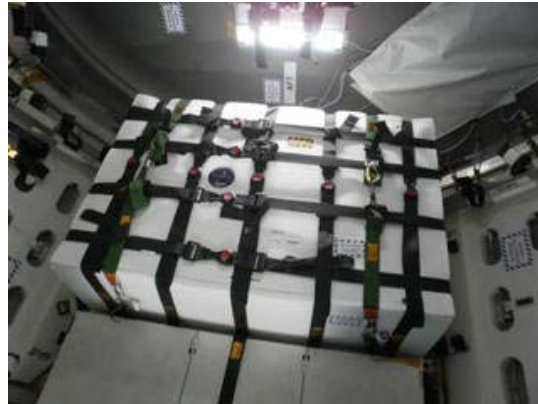
ZIN Technologies

## ISS Payload Integration



### INTEGRATION CAPABILITIES:

- Payload Certification
  - ❖ Requirements Definition
  - ❖ Verifications
  - ❖ Safety Certification
- Mission Management
  - ❖ Mission Requirements Definition
  - ❖ Resource Planning
  - ❖ Program Liaison
  - ❖ Integrated Testing
- Physical Integration
  - ❖ Flight Manifesting
  - ❖ Ground & Flight Logistics
  - ❖ Vehicle Integration
  - ❖ Late and/or Cold Stowage Handling & Logistics
- Post Flight Payload Processing
  - ❖ Post Flight Hardware Recovery
  - ❖ Sample Return Logistics
- Implementation Partner Payload Services
  - ❖ Concierge type services for spaceflight
  - ❖ Educational & Public Outreach
  - ❖ Research & analysis



Our Payload Integration Team supports the integration of both pressurized and unpressurized spaceflight items, such as scientific payloads, ISS racks, logistics and assembly items, crew-related provisions, vehicle logistics hardware, research and development hardware, and spare/orbital replacement units. Our approach to ISS payload integration reduces the level of effort required through the use of in-house tools, templates and custom schedules which have been created to combine common products and data typically required for payloads.

ZIN is experienced in the flexible utilization of different launch and on-orbit carriers. We are able to customize a schedule fitting any level of complexity. Within the past 5-years, ZIN flew payload hardware on 31 of the 54 cargo and crew flights to ISS on 6 different types of Launch Vehicles (LV). The LV manifest is evolving and dynamic, consequently requiring a mature but flexible set of processes and tools. We also provided support to all of these vehicles for on-orbit operations.

- ❑ Payload Certification
- ❑ ISS COTS processes and requirements
- ❑ Verifications
- ❑ Fast track integration process
- ❑ Development of Integrated Safety, Operation, Stowage, and Training Documentation.
- ❑ Multi-Increment Planning
- ❑ Data Set Submittal
- ❑ Integration Working Groups and Panels
- ❑ Integration Documentation
- ❑ ISS Payload Advocacy
- ❑ Manifesting
- ❑ Physical Integration
- ❑ Post Flight Payload Processing



**ZIN Technologies Inc.**

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## ISS National Lab CASIS Implementation Partner

For 25 years, the ZIN engineering team has partnered with NASA management, scientific experts and industry to manage and develop space flight systems, from concept definition, design, development, and fabrication to system assembly, integration, test, launch, operations and return.

As an implementation Partner for the ISS National Laboratory ZIN can streamline ISS science facility utilization to researchers, businesses and educators to take advantage of the unique benefits offered through space-based investigations providing a variety of services to enable efficient execution of science initiatives.



Focus on Quality - Certified and Compliant with Industry and Government Quality Standards



Over 200 Payloads delivered, integrated and operated for shuttle, MIR, and ISS – 75% of all physical science research on ISS since 2001

## OUR PRODUCTS & SERVICES

### PRE FLIGHT:

ZIN provides a wide range of products and services and demonstrated experience for space-based science investigations.

- ❑ Access to a large repository of previous space experiments that align with promising commercial applications
- ❑ Collaboration with experienced payload developers and other subject matter experts to ensure successful experiment operations
- ❑ Utilization of unique capabilities and facilities for developing payloads
- ❑ Coordination with NASA and launch vehicle providers for transparent and easy interaction with investigators

### IN - FLIGHT:

ZIN can support private sector product development and ensure seamless investigation implementation, including:

- ❑ Support of “real time” on orbit payload operations -Telescience Support Center
- ❑ Interfacing with ISS crew during experiment interaction
- ❑ Facilitation of data and software interfaces
- ❑ Coordination of contingency planning for mission changes to preserve science objectives

### Primary Services:

- ❑ Hardware design, manufacture and certification
- ❑ Hardware analytical and physical integration
- ❑ Full lifecycle software, integration & testing
- ❑ Program management
- ❑ Export Compliance
- ❑ Hands-on crew training
- ❑ On-orbit operations

### POST-FLIGHT:

After the project comes back to Earth, ZIN can assist with the following:

- ❑ All post-flight data & report requirements are submitted to the principal investigator in a timely fashion
- ❑ Post Flight Testing and Data Analysis
- ❑ Logistics support for sample and hardware return from ISS
- ❑ Identification and support at appropriate facilities for post-processing activities

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