



*An Engineering and Information Technologies Company*



### Summary

Intrinsic was just selected as the NASA/Ames Research Center 2008 Small Business Industry Award (SBIA) Small Business Subcontractor of the Year. Intrinsic has earned a solid reputation performing effective systems engineering and software engineering for space systems and payloads, and developing and deploying hardware, software, network and database solutions for flight, ground, communications and enterprise information systems. We bring a strong legacy of assessing and implementing new technologies, resulting in significant cost savings to our customers. We have strong skills & unique expertise in enterprise architectures, configuration and requirements management, process engineering and best practices, and a proven ability to perform collaborative research and technology infusion.

### Overview

Intrinsic has extensive technical NASA experience with the Constellation Data Systems (CxDS) Project; Space Shuttle/International Space Station (ISS) payloads including the Life Sciences Projects, Space Station Biological Research Project (SSBRP) and Space Lab missions; Stratospheric Observatory for Infrared Astronomy (SOFIA); and Aviation Safety Programs. We serve as the technical liaison for other NASA Centers, international partners, and development contractors, supporting the Science and Operational Communities. We also serve as verification and validation Subject Matter Experts (SMEs).

### Program and Technical Management

Intrinsic has consistently implemented best practices in engineering and management plans & processes. In October 2003, we played a pivotal role in assisting our customer to attain Capability Maturity Model Integration (CMMI) Level II. We are now using that expertise to assist other projects during CMMI assessments. We have expertise developing full suites of engineering life cycle documentation, and management/project plans.

We have infrastructure and tools in place that expedite work and resource allocation. We ensure that milestones are met and that deliverables are timely and of high quality. In FY2007, all CxDS Project deliverables were completed

**Intrinsic delivers state-of-the-art engineering and software solutions for flight, network, database, and enterprise systems, and has unique expertise with process and systems engineering, CMMI, and technology and research infusion.**



early and we have consistently managed all contractual requirements at or below budget.

### Systems Engineering

For the CxDS Project we have provided plans & procedures for lifecycle systems engineering and software development. Intrinsic provides technical expertise by ensuring that systems, sub-systems, and interfaces meet specifications. We evaluate and review documentation, developed externally, and cross-correlate requirements, design, code, and test to our customers' specifications and standards. We use NASA, DOD and IEEE standards and have aligned ourselves with NASA procedural requirements and life cycle models. We conduct meetings and reviews with vendors/suppliers around the world, track problems, and provide technical assistance.

### Software Development

Intrinsic has a rich history of developing, operating and maintaining applications software, operating systems and infra-structure systems. We are currently developing unique semantic models and implementing them via Web 2.0, Search systems, web services, and J2EE technologies.

For the ISS Project, Intrinsic developed the ground data system for command and telemetry management of ISS payloads. We developed flight software for crew laptops as well as simulation software for astronaut training at JSC.

### Enterprise Architectures

For the CxDS Project, we have developed approaches to

creating Service Oriented Architecture (SOA) solutions for distributed software systems, based on prevailing Web Services standards that help achieve Enterprise Integration and improve Enterprise Governance. The Intrinsic approach leverages legacy systems by reusing a client's software investment while increasing customer access, including features like Single Sign-On and fail-over handling. This success is achieved in part by relying on proven commercial and open source solutions correctly matched to the customers' needs. We apply our broad experience in Enterprise Architecture to give customers a sound set of open standards guidelines for their projects, along with example implementations. Our extensive IT experience allows us to recommend balanced approaches to IT problems that offer reasonable tradeoffs between performance and scalability. We utilize methodologies, such as Unified Markup Language (UML) artifacts in a Rational Unified Process (RUP) or Agile process and The Open Group Architecture Framework (TOGAF) views for our Enterprise Architecture service offering.

### Networks and Data Systems

We develop network architectures, scalable network systems, Fiber Optics, T1, and Ethernet networks and have experience with convergence technologies for voice, video data and satellite communications. Intrinsic has supported NASA, FAA, Battelle and MITRE in ongoing aviation safety programs and provided technical management to implement the critical data recording capabilities across a distributed nationwide network of commercial air carriers. For the ISS project, Intrinsic developed the entire ground data system for an Oracle based telemetry and command data storage and retrieval system, and architected and administered the networks and WAN interfaces.

### IT Security

Intrinsic has developed and implemented IT security & software solutions including networks for: ISS, Aviation Safety Program, and the CxDS Project. We specialize in

perimeter defenses - firewalls, Intrusion Detection Systems (IDS), Intrusion Prevention Systems (IPS) implementations, Public Key Infrastructure (PKI) planning and implementation, IT security plan development, Risk Assessment, systems Certification and Accreditation (C&A), and promote security awareness.

### Requirements and Configuration Management

Intrinsic has expertise with tools, such as CRADLE™, Requirements Traceability Management (RTM™) and DOORS™, to automatically track and manage complex systems requirements. We use ClearCase™, ClearQuest™, Windchill and JIRA for management/control of baselined documentation and software products and for tracking & disposition of issues such as: bugs, changes, problems, hazards & action items.

### Software Process Improvement (SPI)

Our experience with the CMMI Level II assessment has provided a bridge for developing plans, processes and procedures for other projects. We served on the Engineering Process Group (EPG) and have valuable expertise with the latest procedural requirements and associated standards. We are experts in outlining and developing the required artifacts for a project using continuous or staged process improvement models.

### Research Infusion

In FY2004 and FY2005, we received two Research Infusion grants from NASA Headquarters (HQ) Office of Safety and Mission Assurance (OSMA)). Under those grants, we performed technology infusion of automated software tools, developed by NASA and the U.S. Navy, efforts that resulted in decreased software development risk and cost.

### Background

Intrinsic is an SBA 8(a) Small Disadvantaged Business (SDB), founded in 2000. Since then, we have grown without losing our quest for excellence and have maintained very high award fee scores ranging from 96 to 100. Intrinsic has received several NASA awards, and we were nominated for two prestigious awards: George M. Low Award for Excellence in Quality and Performance and Minority Subcontractor of the Year Award. In 2007 Intrinsic received the Ames Contractor Council (ACC) Excellence Award for outstanding work for the Constellation Program.

### Current and Past Customers

- NASA/Ames Research Center
- Lockheed Martin Corp.
- Battelle Memorial Institute
- NASA/Headquarters
- Jacobs Sverdrup
- FAA / MITRE
- Maxim Systems, Inc.
- Orbital Sciences Corp.

<b>Points of Contact:</b>	
Arshad Mian Executive Vice President arshad@intrinsic.com (650) 464-4686 mobile	Mike Schultz Director, Business Development mike@intrinsic.com (408) 334-2573 mobile
Intrinsic Technologies Corporation NASA Research Park MS 19-102 Moffett Field, CA 94035 www.intrinsic.com 650-210-9220	

