National Aeronautics and Space Administration

Marshall Space Flight Center

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marshall

Technology Drives Exploration

Technology Events and Milestones

2014

Nuclear Propulsion

Cryogenics

Advanced Manufacturing

Smallsats

Low Cost Access to Space

2015

2016

2017

2018

2019

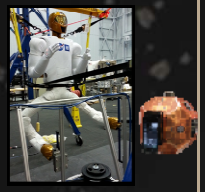
2020

Optical Comm & Sensor Demo

EDSN SmallSat Demo

Sunjammer Solar Sail

Integrated Solar Array



Human Robotic Systems & Telerobotics

Cubesat Proximity Ops Demo

Deep Space Atomic Clock

Green Propellant

LDSD: Supersonic Inflatable Aerodynamic Decelerator

Cryogenic Propellant Storage & Transfer

Space Launch System

Laser Communications Relay Demonstration

SEP Demo Mission

Future Planning

Tech Development- Nuclear Propulsion

Demonstrate the Viability of Nuclear Propulsion Technologies

Tech Development- Cryogenics

In 2013, MSFC successfully tested a 8-ft/2.4m composite cryotank.

In March, the 5.5m composite cryotank arrived via super guppy.

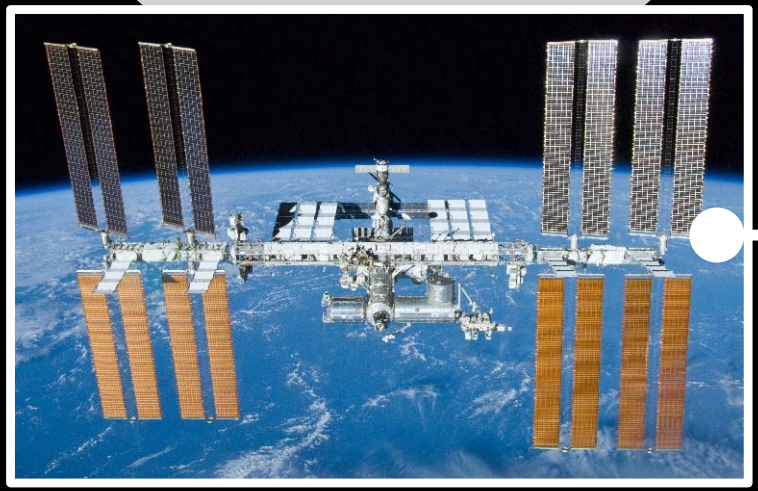
Testing of the 5.5m tank began in May and concludes in August.

Engineering Development Unit

Marshall completed hydrogen and nitrogen testing of the EDU in July.

Tech Development- Advanced Manufacturing

In 2013, MSFC test fires 3D printed rocket fuel injector.



3D space printer is awaiting its Space-X launch in Sept. to ISS.

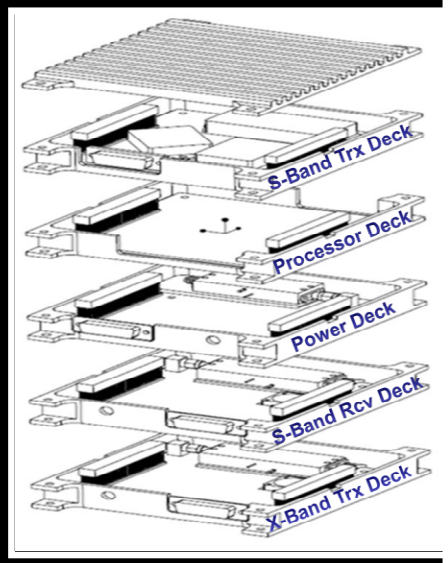
MSFC completed its verification testing in May.

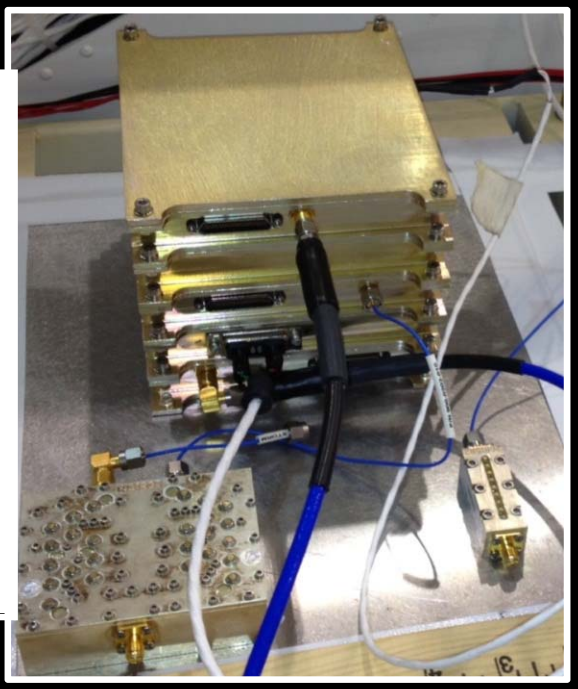
MSFC received 3D space printer in March.

Tech Development- Smallsats

FASTSAT

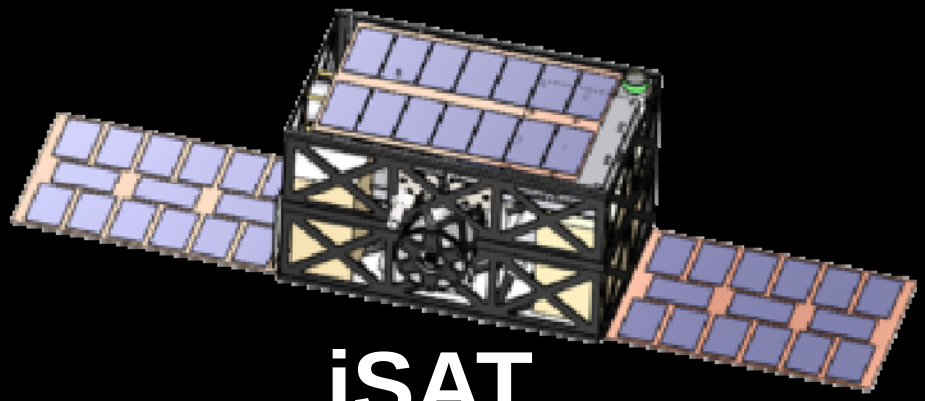
2010-2012
MSFC-built and launched nanosatellite from a microsattelite





PULSAR

Programmable Ultra Lightweight System Adaptable Radio



iSAT

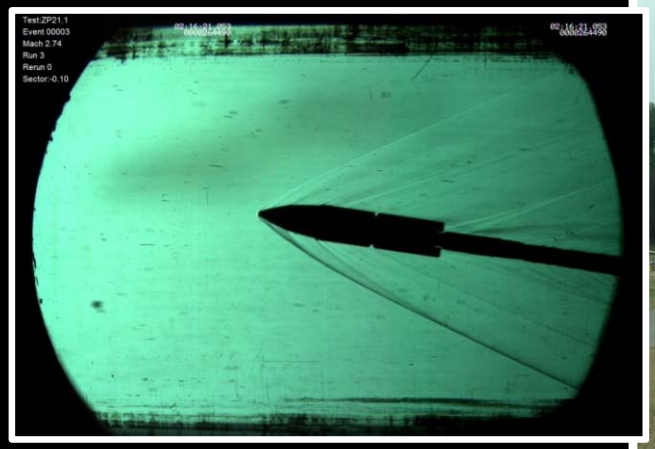
Iodine Satellite

Tech Development- Low Cost Access to Space

Hi-C

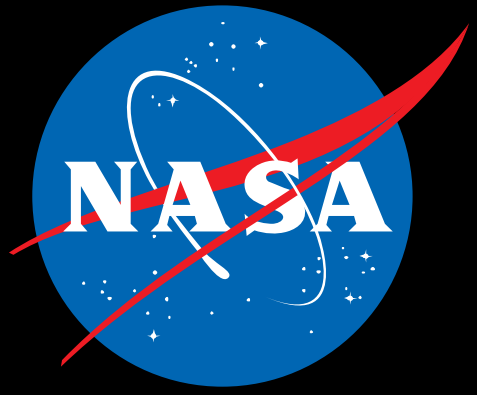
High Resolution Coronal Imager

MSFC Nanolaunch



SWORDS

Engine Testing



www.nasa.gov/marshall