

# Nusantara Satu Mission

## MISSION OVERVIEW

SpaceX is targeting Thursday, February 21 for launch of the Nusantara Satu satellite from Space Launch Complex 40 (SLC-40) at Cape Canaveral Air Force Station, Florida. The 32-minute launch window opens at 8:45 p.m. EST, or 1:45 UTC on February 22. Falcon 9 will also deliver the Beresheet lunar spacecraft and Air Force Research Laboratory (AFRL) S5 spacecraft to orbit. Deployments will occur at approximately 33 and 44 minutes after liftoff.

A 32-minute backup launch window opens on Friday, February 22 at 8:41 p.m. EST, or 1:41 UTC on February 23.

Falcon 9's first stage for the Nusantara Satu mission previously supported the Iridium-7 mission in July 2018 and the SAOCOM 1A mission in October 2018. Following stage separation, SpaceX will attempt to land Falcon 9's first stage on the "Of Course I Still Love You" droneship, which will be stationed in the Atlantic Ocean.



Official Nusantara Satu Mission Patch

## PAYLOADS

SSL built the Nusantara Satu satellite for PT Pasifik Satelit Nusantara (PSN), a leading Asian provider of satellite-based telecommunication services. Nusantara Satu is Indonesia's first high-throughput satellite that will serve to improve internet connectivity in the region. Additionally, the satellite's C-band and Ku-band transponders will be used for voice and data communications and video distribution throughout the Indonesian archipelago. In order to bring a secondary payload to orbit, SSL designed Nusantara Satu using its next-generation electric propulsion system. The launch demonstrates SSL's ability to take small rideshare satellites to geostationary orbit efficiently and economically.

SpaceX's lunar spacecraft Beresheet (Hebrew for "in the beginning"), which competed in the Google Lunar XPrize, will be the smallest spacecraft to ever land on the Moon, at only 1,322 lbs, or 600 kgs. Upon deployment, it will travel to the Moon using its own power, a voyage that will take nearly two months. Once it arrives, Beresheet will be Israel's first spacecraft and the world's first privately-funded spacecraft to reach the Moon. Its mission is to transmit photos and video of its new home and conduct scientific measurements.

The Air Force Research Laboratory (AFRL) S5 experimental small spacecraft, developed and integrated by Blue Canyon Technologies, will carry out a one-year mission. The S5 mission leverages commercial advances and services in a rapid demonstration of small satellite capabilities.

## MISSION TIMELINE (ALL TIMES APPROXIMATE)

### COUNTDOWN

Hour/Min/Sec	Events
- 00:38:00	SpaceX Launch Director verifies go for propellant load
- 00:35:00	RP-1 (rocket grade kerosene) loading underway
- 00:35:00	1st stage LOX (liquid oxygen) loading underway
- 00:16:00	2nd stage LOX loading underway
- 00:07:00	Falcon 9 begins engine chill prior to launch
- 00:01:00	Command flight computer to begin final prelaunch checks
- 00:01:00	Propellant tank pressurization to flight pressure begins
- 00:00:45	SpaceX Launch Director verifies go for launch
- 00:00:03	Engine controller commands engine ignition sequence to start
00:00:00	Falcon 9 liftoff

### LAUNCH AND SATELLITE DEPLOYMENT

Hour/Min/Sec	Events
00:01:07	Max Q (moment of peak mechanical stress on the rocket)
00:02:37	1st stage main engine cutoff (MECO)
00:02:40	1st and 2nd stages separate
00:02:48	2nd stage engine starts
00:03:46	Fairing deployment
00:06:44	1st stage entry burn complete
00:08:07	2nd stage engine cutoff (SECO-1)
00:08:32	1st stage landing
00:27:03	2nd stage engine restarts
00:28:08	2nd stage engine cutoff (SECO-2)
00:33:39	Beresheet deployment
00:44:38	Nusantara Satu and Air Force Research Laboratory S5 deployment

### LAUNCH FACILITY

#### Space Launch Complex 40 at Cape Canaveral Air Force Station, Florida

SpaceX's SLC-40 at Cape Canaveral Air Force Station is a world-class launch site that builds on a strong heritage. The site, located at the north end of Cape Canaveral Air Force Station, was used for many years to launch Titan rockets, among the most powerful in the U.S. fleet. SpaceX took over the facility in May 2008.

The center of the complex is composed of the concrete launch pad and flame diverter system. Surrounding the pad are four lightning towers, propellant storage tanks, and the integration hangar. Before launch, Falcon 9's stages and payload are housed inside the hangar. The payload is mated to the Falcon 9 inside SLC-40's hangar on the transporter erector. The rocket and payload are then rolled out from the hangar to the launch pad and lifted to a vertical position.

### RESOURCES

SpaceX Contact | James Gleeson, Communications Director, 202-649-2633, [media@spacex.com](mailto:media@spacex.com).

Photos | High-resolution photos will be posted at [flickr.com/spacex](https://www.flickr.com/photos/spacex/).

Webcast | Launch webcast will go live about 15 minutes before liftoff at [spacex.com/webcast](https://www.spacex.com/webcast).