Stratolaunch FAQ

Q. What was the inspiration for Stratolaunch?
A. The idea of air launching payloads isn't new, but Paul Allen wanted to develop an aircraft-derived system that was capable of carrying payloads to space. It has become evident that the industry needs a responsive and operationally flexible solution to increase flight rate resulting in lower cost missions. This non-traditional approach to launch could open up the market for truly privatizing human space flight and lower the cost of launching payloads to orbit.

Q. What is the history of this project?
A. This inspiration began with the successful suborbital flights of SpaceShipOne in 2004. SpaceShipOne was built by Burt Rutan's team at Scaled Composites and funded by Paul Allen. At the final flight of SpaceShipOne, Burt Rutan and his longtime colleague Mike Griffin began discussing the potential for a follow-on, orbital system. PaulAllen expressed his interest in funding the development of such a system as a means for reestablishing U.S. leadership in space launch and continuing his legacy of privately funded space flight. They reached out to NASA's Dave King and Gary Wentz and SpaceX's Gwynne Shotwell, and the group began formulating options for executing the program in 2010. In 2012 Stratolaunch began working with Orbital Sciences to develop engineering solutions for the Stratolaunch system.

Q. Why do this now?
A. The timing for a system like Air Launch has never been better. The challenge with the launch market today is finding a way to put payloads into orbit affordably and responsively. This system will achieve both and mark the dawn of a new era in space transportation.

Q. How long was this idea in development?
A. The concept isn't new but we began concerted development activities on this large-scale system over the past year.

Q. When do you see the maiden flight of new launch aircraft taking place?
A. We are still in the planning stages but we expect to conduct flight testing beginning in 2016. The first flight will occur once we are satisfied the system is ready. The first launch of the space launch vehicle will likely occur in 2018.

Q. How many missions per year do you expect to fly?
A. It's too soon to predict but the objective is to have a routine mission schedule that takes full advantage of the operational responsiveness and flexibility of this system, and offers a very cost-competitive launcher to the market.

Q. How many jobs will this program create?
A. There are already over 100 people assigned to this effort and we will see a significant ramp-up as we move deeper into the engineering phase then start manufacturing and eventually operations. These jobs will first be located in Alabama, California and Florida. We are proud that the headquarters for this effort are located in the Rocket City – Huntsville, Alabama.

Q. What are Stratolaunch's capabilities to different orbits?
A: The capability of the Stratolaunch ALV allows for medium/intermediate sized payloads to be launched into low Earth orbit at any inclination, including sun-synchronous orbits. Geostationary transfer orbits are possible for some payload classes.

Q. What kinds of payloads can Stratolaunch deliver?
A: Stratolaunch is designed to be compliant to EELV standards. The Air Launch Vehicle has a 5-meter fairing and is capable of launching payloads over 6,000 kg (over 13,000 lbs.) to low Earth Orbit. The launch vehicle fairing is a temperature and humidity controlled environment. Stratolaunch is capable of launching intermediate payloads that require rapid launch response and delivery to any orbital inclination from multiple launch ranges with minimal ground infrastructure.

Q. Where will the system launch from?
A: Several sites are under consideration, including Kennedy Space Center, Wallops Island and Vandenberg AFB. Because of Stratolaunch's air launch and austere ground support approach, many more sites are compatible for launch operations than traditional space launch systems.

Q. Where will the Carrier Aircraft land?
A: Under normal operations, the Stratolaunch Carrier Aircraft will return to the originating launch site after launch of the ALV. However, contingency landing sites are available if the need arises to land the Carrier Aircraft either before or after launching the ALV. This is the same operational methodology that Orbital has applied to its Pegasus system for over 20 years.

Q. What kind of weather restrictions are there for launch and landing?
A: One of several advantages that the Stratolaunch system brings to space launch is the ability to launch up to 1,000 nautical miles away from the primary runway and to loiter in place for up to 1 hour. This ability gives Stratolaunch the flexibility to avoid localized adverse weather conditions. Likewise, Stratolaunch has the capability to remain in a launch-ready configuration on the ground for an extended period of time.

Q. Why did Stratolaunch choose Orbital?
A: Orbital brings the right combination of experience, expertise and industrial capacity to the Stratolaunch team. Orbital pioneered commercial air-launch with the Pegasus space launch vehicle, as well as proved the concept of easy transportability and rapid setup and launch from an austere site with the DARPA-sponsored Taurus program. Orbital has been contracted to design and develop the ALV, to provide ground operations, including payload and launch vehicle integration, and to perform overall systems engineering.

SpaceShipOne

SpaceShipOne ushered in a new era of space travel in 2004, when it became the first non-governmental manned rocket ship to fly beyond the earth's atmosphere. The aircraft, a three-place, high-altitude research rocket, fueled interest in commercial space travel.

SpaceShipOne was developed by Mojave Aerospace, a joint venture of investor and philanthropist Paul Allen, and Scaled Composites, a Mojave-based aerospace company founded by legendary aerospace engineer Burt Rutan. It took about three years of full-time development to complete SpaceShipOne and its carrier craft, White Knight.

On June 21, 2004, SpaceShipOne made history when it successfully reached space and pilot Mike Melville became the first civilian to fly a spaceship out of the earth's atmosphere. Four months later, on October 4, SpaceShipOne became the first private manned spacecraft to exceed 328,000 feet twice in 14 days, earning it the prestigious $10 million Ansari X-Prize.

The historic flight was the first time an aerospace program successfully completed a manned mission without government sponsorship – signifying private enterprise will play a major role the future of space travel.
Business entrepreneur Richard Branson of Virgin Group has since licensed the technology behind SpaceShipOne for Virgin Galactic, a venture that will take paying customers into suborbital space.

SpaceShipOne Highlights

- The first non-governmental manned spacecraft in history
- Winner of the $10 million Ansari X-Prize in 2004
- Carried the first civilian astronaut

Stratolaunch Systems: A Paul G. Allen Project

Stratolaunch Systems, a Paul G. Allen project, is developing an air-launch system that will revolutionize space transportation by providing orbital access to space at lower costs, with greater safety and more flexibility. Delivering payloads in the 10,000lbm class into low earth orbit, the system allows for maximum operational flexibility and payload delivery from several possible operational sites, while minimizing mission constraints such as range availability and weather.

The air-launch system is made up of four primary elements: a launch aircraft, a multi-stage booster, a mating and integration system, and an orbital payload. Initial efforts will focus on unmanned payloads; however, human flights will follow as safety, reliability, and operability are demonstrated.

Stratolaunch Systems has assembled a team of innovative aerospace leaders to build and deliver a commercial air launch system. Scaled Composites will build the launch aircraft; Orbital Sciences will design, assemble, and test the multi-stage booster; Orbital will also provide program management, systems engineering, space launch mission design, system integration and integrated ground support for the Stratolaunch System. Stratolaunch Systems headquarters are in Huntsville, Alabama, and its aircraft hangar is in Mojave, California.

Carrier Aircraft
The carrier aircraft, built by Scaled Composites, weighs more than 1.3 million pounds and has a wingspan of over 380 feet – the same length as a football field. Using six 747 engines, the carrier aircraft will be the largest aircraft ever constructed. The air-launch system requires a takeoff and landing runway that is approximately 12,500 feet long. The carrier aircraft can fly over 1,000 nautical miles to reach an optimal launch point.

Multi-Stage Booster
Orbital's multi-stage booster leverages the company's experience with its Pegasus, Taurus and Antares launch vehicle fleet experience. At approximately 120 feet long, the air launch vehicle is designed to boost the payload into low earth orbit. After release of the booster from the aircraft at approximately 30,000 feet, the first stage engines ignite and the spacecraft begins its journey into space. The air launch vehicle's health and status during flight is monitored from the launch aircraft and on the ground.

System Integration
Orbital Sciences provides integrated systems engineering including all Airborne Support Equipment (ASE) and Integrated Ground Systems (IGS). The ASE includes the pylon that serves as the mating mechanism between the carrier aircraft and the approximately 500,000 pound air launch vehicle. Furthermore, the ASE includes all necessary environmental control systems, transportation and handling equipment, facilities, software and any other associated systems necessary for launch vehicle functions. The IGS includes the mission operations center, integrated Stratolaunch system level test equipment and any unique Stratolaunch systems necessary to conduct complete launch operations.

Stratolaunch Partners

Scaled Composites

Scaled Composites, LLC, a wholly owned subsidiary of Northrop Grumman Corporation, is an aerospace and specialty composites development company and the birthplace of many of the world's most exciting aircraft in recent decades, including SpaceShipOne that won the $10 million Ansari X Prize in 2004, SpaceShipTwo, and Global Flyer. Founded in 1982 by Burt Rutan, Scaled Composites continues to focus on innovative, out-of-the-box aerospace solutions through its broad experience in air vehicle design, tooling and manufacturing, specialty composite structure design, analysis and fabrication, and developmental flight tests of air and space vehicles.

Orbital Sciences Corporation

Orbital Sciences Corporation was founded in 1982 with the goal of making space systems more affordable, accessible and useful to millions of people on Earth. Employing state-of-the-art technologies and entrepreneurial business practices, Orbital has created new classes of launch vehicles, satellites and other space technologies. Today, Orbital's customers use the company's innovative and reliable space systems to defend our nation, to provide global communications, to study the Earth, and to explore our solar system and the universe beyond. Orbital is a leader in the development of new launch vehicle technologies to lower the cost of access to space. Orbital has a proven track record of adapting many of its launch vehicle technologies to support new mission requirements. Past and current missions include reusable launch vehicles, space maneuvering vehicles and hypersonic aircraft and missiles.

Stratolaunch Leadership

Paul G. Allen

Investor and philanthropist Paul G. Allen creates and advances world-class projects and high-impact initiatives that change and improve the way people live, learn, work and experience the world through arts, education, entertainment, sports, business and technology. He co-founded Microsoft with Bill Gates in 1975 and remained the company's chief technologist until he left Microsoft in 1983. He is the founder and chairman of Vulcan Inc. which oversees his business and philanthropic efforts.

In 2004 Allen funded SpaceShipOne, the first privately-backed effort to successfully put a civilian in suborbital space and winner of the Ansari X-Prize competition. With lifetime giving of more than $1 billion, Allen has been named one of the top philanthropists in America. In 2003, Allen contributed $100 million to create the Allen Institute for Brain Science, an independent, nonprofit medical research organization dedicated to accelerating the understanding of how the brain works. Allen's investment portfolio includes holdings in real estate and more than 40 technology, financial services, consumer product and other companies.

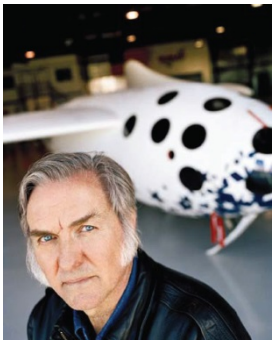
Stratolaunch Corporate Officers

Gary L. Wentz Jr.
Chief Executive Officer & Chairman

Prior to joining Stratolaunch Systems, Gary L. Wentz Jr. was Senior Executive at the National Aeronautics & Space Administration. Wentz served as the Chief Engineer of the Science and Mission Systems at the Marshall Space Flight Center (MSFC), Huntsville, Alabama, from January 2006 until 2010. The Science and Mission Systems activities at MSFC include exploration systems design and development, International Space Station element and payload hardware development, and science research and development activities.

Wentz holds a bachelor's degree in aerospace engineering and a master's degree in engineering management from the University of Central Florida in Orlando. He is the recipient of the NASA Outstanding Leadership Medal, NASA Certificate of Commendation, the NASA Space Station Program Team Excellence Award, numerous group achievements, and certificates of achievement.

Stratolaunch Board Members



Burt Rutan

Named “Entrepreneur of the Year” by Inc. magazine and described by Newsweek as “the man responsible for more innovations in modern aviation than any living engineer,” Burt Rutan is a bold entrepreneur and designer with the vision and passion for the advancement of technology.

Graduating third in his class, Rutan earned a bachelor’s degree in aeronautical engineering from California Polytechnic University in 1965. Since then, he has been awarded six honorary doctorates: Doctoral of Science from Daniel Webster College in 1987, Honorary Doctor of Science from California Polytechnic University in 1987, Doctoral of Humanities from Lewis University in 1988, Doctoral of Technology from Delft University of Technology in 1990, Honorary Doctoral of Engineering from University of Illinois in 2006, and an Honorary Doctoral Degree from the Free University of Brussels in 2007.

Mike Griffin

Nominated by President George W. Bush and confirmed by the United States Senate, Michael Griffin began his duties as the 11th Administrator of the National Aeronautics and Space Administration on April 14, 2005. As Administrator, he led the NASA team and managed its resources to advance the U.S. Vision for Space Exploration.

Griffin received a bachelor’s degree in physics from Johns Hopkins University; a master’s degree in aerospace science from Catholic University of America; a Ph.D. in aerospace engineering from the University of Maryland; a master’s degree in electrical engineering from the University of Southern California; a master’s degree in applied physics from Johns Hopkins University; a master’s degree in business administration from Loyola College; and a master’s degree in Civil Engineering from George Washington University. He is a certified flight instructor with instrument and multiengine ratings.