

Commercial Space Company Summaries

Blue Origin



Blue Origin is a commercial space company that has engineering and manufacturing teams working in a 280,000 sq. ft. facility on 26 acres in Kent, Wash. The company is developing *New Shepard*, a rocket-propelled vehicle designed to routinely fly multiple astronauts into suborbital space. Besides providing spaceflight opportunities, *New Shepard* also will offer frequent opportunities for researchers to fly experiments into space and microgravity.

The *New Shepard* vehicle will consist of a pressurized crew capsule carrying experiments and humans atop a propulsion module. Flights will take place from Blue Origin's launch site in West Texas. *New Shepard* will take off vertically and accelerate for about two and a half minutes before shutting off its rocket engines and coasting into space. The crew capsule will separate from the propulsion module and the two will reenter and land separately for re-use.

The Boeing Company



The Boeing Space Exploration division of The Boeing Company, headquartered in Houston, has been involved in the development of new spacecraft systems since the beginning of the Space Age. Boeing is a global supplier of reusable and human space systems and services, involved in programs including X-15, Gemini, Apollo, Skylab, the space shuttle and International Space Station.

Space Exploration, a division within Boeing Defense, Space & Security's Network and Space Systems business, employs more than 3,500 employees in Texas, California, Alabama and Florida. Boeing Houston employees also provide engineering, software development, advanced research and light manufacturing support for NASA.

Paragon Space Development Corporation



Founded in 1993, Paragon Space Development Corporation is a woman-owned small business headquartered in Tucson, Arizona, with additional offices in Houston, Denver and Washington, DC. The Paragon office in Tucson, Ariz., provides hardware and engineering services that meet the most challenging life support and thermal control requirements.

Paragon has directly supported more than 70 successful spaceflight missions - including the International Space Station, the Mir space station, the space shuttle and Soyuz - with the manufacture, maintenance, refurbishment and operation of human spaceflight hardware. In 2008, Paragon was ranked by Inc. magazine as the fastest-growing privately held aerospace engineering company in the United States.

Sierra Nevada Corporation



Sierra Nevada Corporation (SNC) is a rapidly-growing growing company headquartered in Colorado, with 35 facilities in 20 states. The SNC Space Systems area was established in 2009 with the combination of SNC subsidiary MicroSat Systems,

SpaceDev, which was acquired by SNC in late 2008, and Starsys which was acquired by SpaceDev in 2006. MicroSat Systems, SpaceDev, and Starsys have a combined 20-year history in space, providing hardware for more than 300 Earth orbiting and interplanetary missions.

SNC Space Systems designs and manufactures satellites, spacecraft subsystems and components, and rocket propulsion systems. The company provides customers with design options for power systems, avionics, lightweight structures, and human spacecraft systems. SNC Space Systems products have been on several interplanetary missions, including actuators and motors that power the Mars Rovers. SNC is building innovative, lower-cost satellites like TacSat 2 and Trailblazer, and creating advanced miniaturized avionics, thin-film solar arrays, and lightweight composite structures for spacecraft of the future.

United Launch Alliance



Formed in 2006, United Launch Alliance (ULA) brings together two of the launch industry's most successful teams, which have supported America's presence in space for more than 50 years. ULA is a joint venture owned by the Lockheed Martin Corporation and The Boeing Company. The venture was created to provide reliable, cost-efficient spacecraft launch

services for the U.S. government. ULA launches the Atlas and Delta expendable launch vehicle families, offering government customers vehicle configurations with the widest range of payload accommodations. Atlas and Delta expendable launch vehicles have carried almost 850 combined payloads to space, ranging from weather, telecommunications and national security satellites, to deep space and interplanetary exploration missions.

The United Launch Alliance team consists of approximately 4,200 employees working at sites across the country. ULA program management, engineering, test, and mission support functions are headquartered in Denver, Colo. Manufacturing, assembly and integration operations are located in Decatur, Ala. and Harlingen, Tex. Launch operations are located at Cape Canaveral Air Force Station, Fla., and Vandenberg Air Force Base, Calif.

Space Exploration Technologies Corporation (SpaceX)



SpaceX is developing a family of launch vehicles designed to reduce the cost and increase the reliability of space access. Established in 2002 by Elon Musk, the founder of PayPal and the Zip2 Corporation, SpaceX has developed two new launch vehicles, established a launch manifest, and been awarded funding by NASA to demonstrate the delivery and return of cargo to the International Space Station. SpaceX is privately developing the Dragon crew and cargo capsule and the Falcon family of rockets, including main and upper stage engines, the cryogenic tank structure, avionics, guidance and control software and ground support equipment.

The Falcon 1, Falcon 9 and Falcon Heavy launch vehicles will provide light, medium and heavy-lift launch capabilities. The Dragon crew and cargo capsule are currently under development to provide transportation of crew and cargo to the International Space Station and other low Earth orbit destinations. SpaceX design and manufacturing facilities are located near the Los Angeles International Airport. The company's propulsion and structural test facilities are located in Central Texas. SpaceX currently has launch complexes at Vandenberg Air Force base in California and Kwajalein Island. In April 2007, the company began developing Space Launch Complex 40 at Cape Canaveral.

Orbital Sciences Corporation



Headquartered in Virginia, Orbital Sciences Corporation has considerable space operations experience, with almost 900 satellites, launch vehicles and other space-related systems delivered or under contract since 1982. The company's satellites include small and medium geosynchronous Earth orbit satellites for communication and broadcasting, low Earth orbit spacecraft that perform remote sensing and scientific research, spacecraft used for national security missions, and planetary probes to explore deep space.

Orbital's launch services include light- and medium-class vehicles. Orbital also has entered the human spaceflight realm, supplying commercial cargo resupply services for the International Space Station using the new Taurus II rocket and Cygnus advanced maneuvering spacecraft. Orbital provides engineering, production and technical services for NASA, the Department of Defense, and commercial and academic space programs. The company employs about 3,600 workers, including about 1,830 engineers and scientists.