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Commercial Crew Development (CCDev) Round One Companies Have Reached Substantial Hardware Milestones In Only 9 Months, New Images and Data Show

Rapid pace of accomplishments poises industry for further progress in upcoming CCDev Round 2

Washington, D.C., Monday, November 8, 2010 – Showcasing the potential of commercial crew transportation and commercial fixed-price agreements, five company teams selected by NASA in February 2010 under the $50 million Commercial Crew Development Round One program have built significant working hardware in just nine months, new images and data show.

"The launch vehicles for Commercial Crew already exist and are flying today, and the capsules and spacecraft that will fly atop these launch vehicles are making significant hardware progress – rocket engines are being fired, landing systems are being tested, heat shields are being built, designs are being refined," said Bretton Alexander, President of the Commercial Spaceflight Federation. "The commercial spaceflight industry is poised to meet NASA's mission requirements for crew transportation, creating thousands of jobs along the way."

On the following pages is information on the progress of the five teams participating in Commercial Crew Development Round One:

- Sierra Nevada Corporation
- Paragon Space Development Corporation
- United Launch Alliance
- Blue Origin
- Boeing

About the Commercial Spaceflight Federation

The mission of the Commercial Spaceflight Federation (CSF) is to promote the development of commercial human spaceflight, pursue ever-higher levels of safety, and share best practices and expertise throughout the industry. The Commercial Spaceflight Federation's member companies, which include commercial spaceflight developers, operators, spaceports, suppliers, and service providers, are creating thousands of high-tech jobs nationwide, working to preserve American leadership in aerospace through technology innovation, and inspiring young people to pursue careers in science and engineering. For more information please visit www.commercialspaceflight.org or contact Executive Director John Gedmark at john@commercialspaceflight.org or at 202.349.1121.

Sierra Nevada Corporation (SNC):

Overview:
SNC's CCDev award was for its Dream Chaser vehicle. Dream Chaser will launch on an existing United Launch Alliance Atlas V launch vehicle, and will have on-board propulsion utilizing SNC's proprietary hybrid motor technology. The Dream Chaser spacecraft is based on NASA's HL-20 crew vehicle, with a strong development heritage. It is a piloted spacecraft which will be able to carry a crew of seven as well as critical cargo to the ISS and other low Earth orbit destinations, and return crew and fragile experiments to a runway landing.

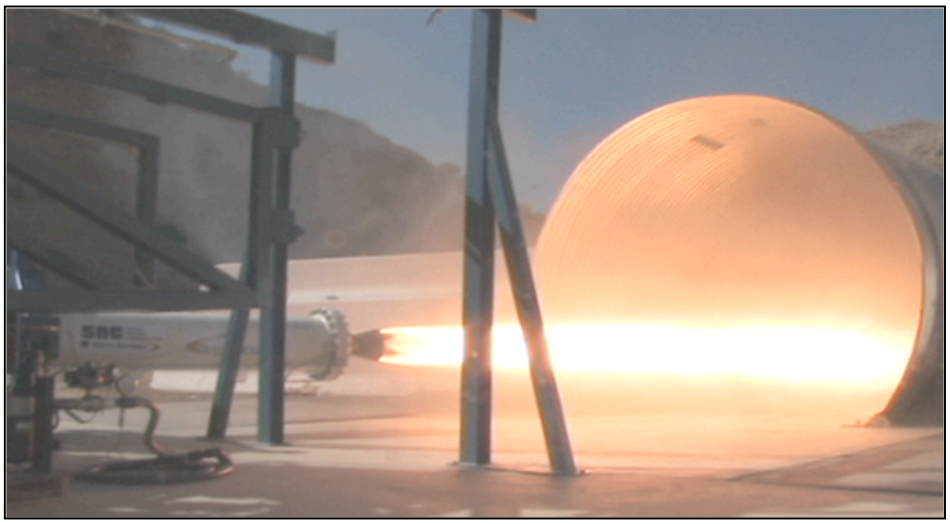


Image: SNC Motor Firing

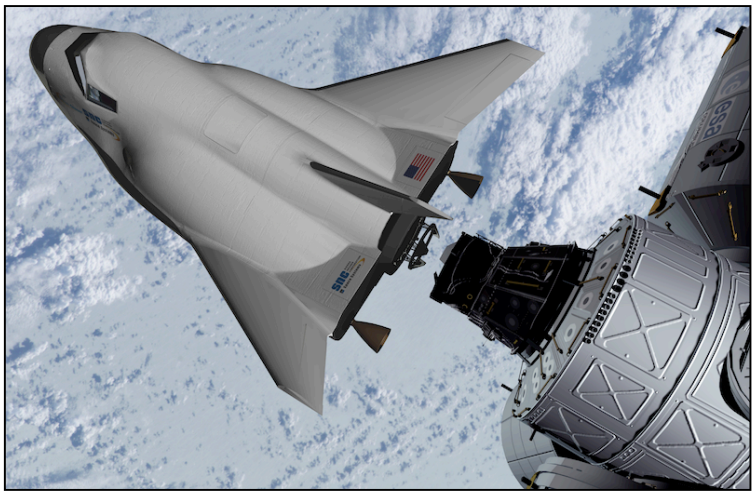
Progress:
SNC has announced the successful completion of two more critical milestones for NASA's Commercial Crew Development (CCDev) Program. On September 21, 2010, SNC completed its third milestone which was three successful test firings of a single hybrid rocket motor in one day. The tests, which simulated a nominal mission profile, demonstrated the multiple restart capability of SNC's proprietary hybrid rocket motor. Earlier this summer, SNC completed its second major milestone. This milestone was focused on the

Image: SNC Dream Chaser Pressure Shell

development of the primary tooling necessary to build the composite structure of the Dream Chaser. The tooling required under the milestone has been completed and is now being used to complete fabrication of the first critical aeroshell structures which will be tested later this year.

Quote:
Mark N. Sirangelo, SNC's Corporate Vice President for Space Systems commented, "SNC has four major milestones under the CCDev 10 month program. All three of our completed milestones were finished on time and on budget. NASA conducted a thorough review of all the elements of the milestones and has certified milestone completion with no corrective actions. I'd like to thank all of our CCDev Dream Chaser team for this terrific accomplishment."

More Images:
- Left: SNC Dream Chaser Docking with ISS
- Right: SNC Dream Chaser test cockpit (credit: CU-Boulder)
- Bottom: SNC Vice President and former astronaut Jim Voss works with University of Colorado students in front of the Dream Chaser mock up (credit: CU-Boulder)



Paragon Space Development Corporation:

Overview:
Paragon Space Development Corporation (Paragon), a leader in designing and manufacturing spacecraft thermal control and life support systems, is developing the Commercial Crew Transport – Air Revitalization System (CCT-ARS) under its CCDev Space Act Agreement (SAA) with NASA. Paragon is developing the flight design through its Preliminary Design Review and manufacturing and testing a full-scale Engineering Development Unit (EDU) under the SAA. The system provides the following primary life support functions for up to seven crew members:

1) carbon dioxide control;
2) humidity control;
3) cabin air temperature control;
4) trace contaminant control;
5) atmospheric post fire recovery;
6) cabin air filtration;
7) primary cabin air circulation.

With insight and guidance provided by NASA under the Space Act Agreement, Paragon's CCT-ARS has been designed to be fully compliant with existing NASA Human Rating Requirements.

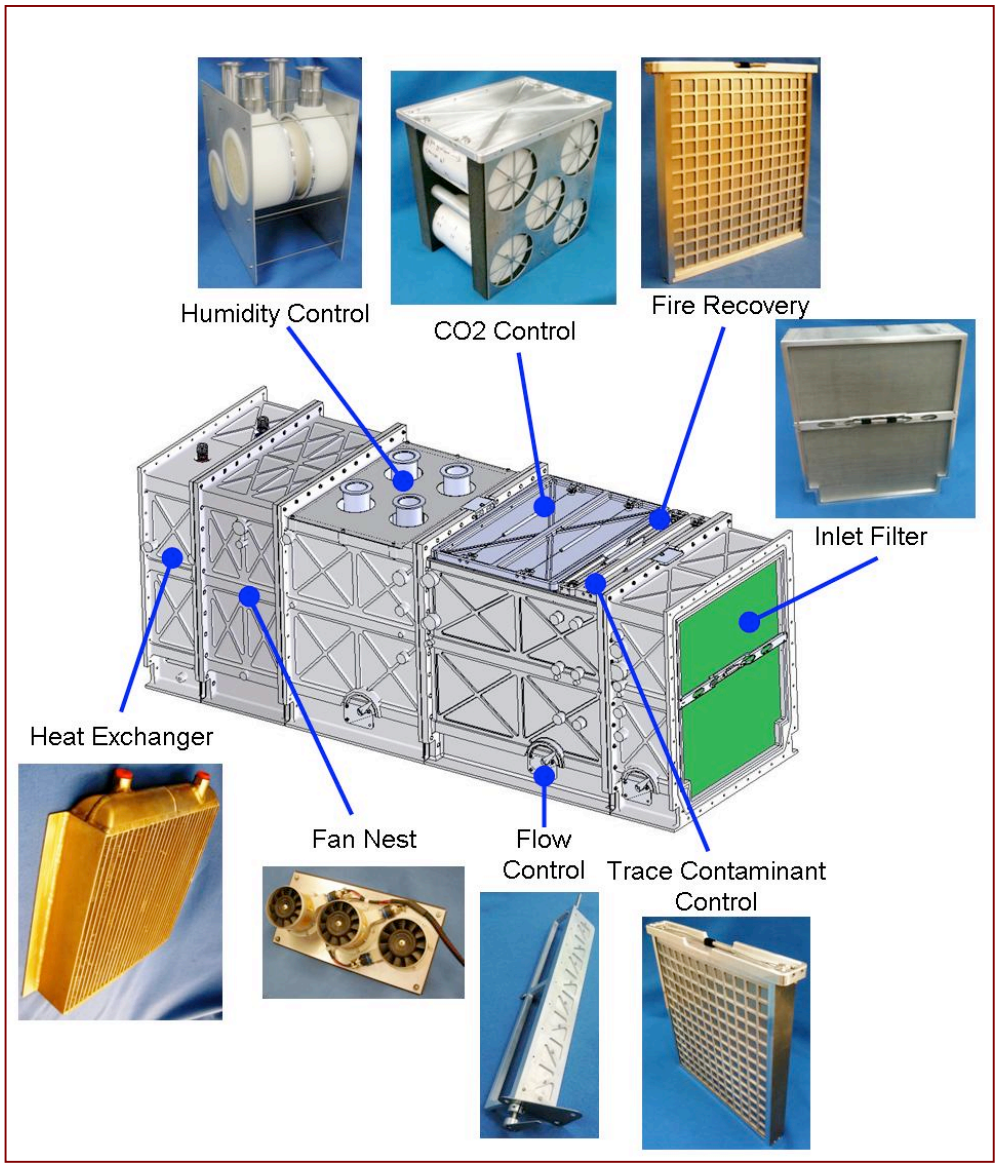


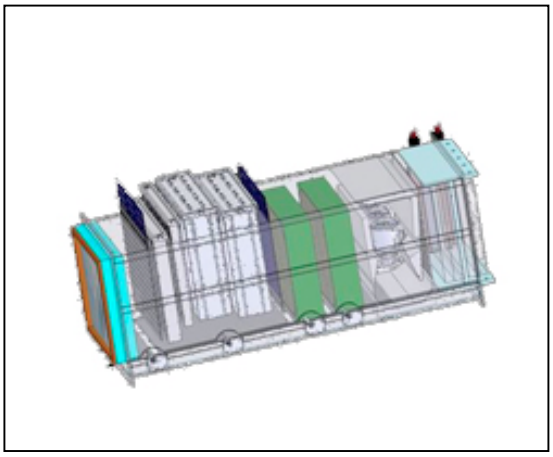
Image: Manufacturing of key components of the Engineering Development Unit

Progress:
Paragon has already successfully completed three milestones on schedule and budget under the SAA (the Flight Requirements Review, System Design Review, and Preliminary Design Review). Two additional milestones will be completed under the SAA later this year – 1) CCT-

ARS Engineering Development Unit (EDU) manufacturing completion, and 2) EDU integrated ground testing final report.

Quote:
"In a unique, fast-paced partnership with NASA, Paragon is developing the key parts of a commercially available Environmental Control and Life Support System (ECLSS). Working with NASA, the system is being designed to meet the latest NASA Safety and Human Rating Standards while incorporating lessons learned from all of NASA's past and current human spaceflight programs," said Taber MacCallum, Chief Executive Officer of Paragon.

More Images:
- Right: View of the Paragon Commercial Crew Transport-Air Revitalization System (CCT-ARS).
- Bottom: Paragon's state-of-the-art ECLSS Human-Rating Facility (EHF) allows component and subsystem testing at flight pressure in a safe and cost effective manner in a laboratory environment. This facility, which predates the CCDev program, is being used for CCDev. (credit: NASA)



United Launch Alliance (ULA):

Overview:
United Launch Alliance was awarded $6.7 million accompanying their own $1.3 million investment to develop an Emergency Detection System (EDS) prototype test bed. The EDS will monitor critical launch vehicle and spacecraft systems and issue status, warning and abort commands to crew during their mission to low Earth orbit. EDS is a significant element necessary for flight safety to meet the requirements to human rate ULA's highly reliable launch vehicles.

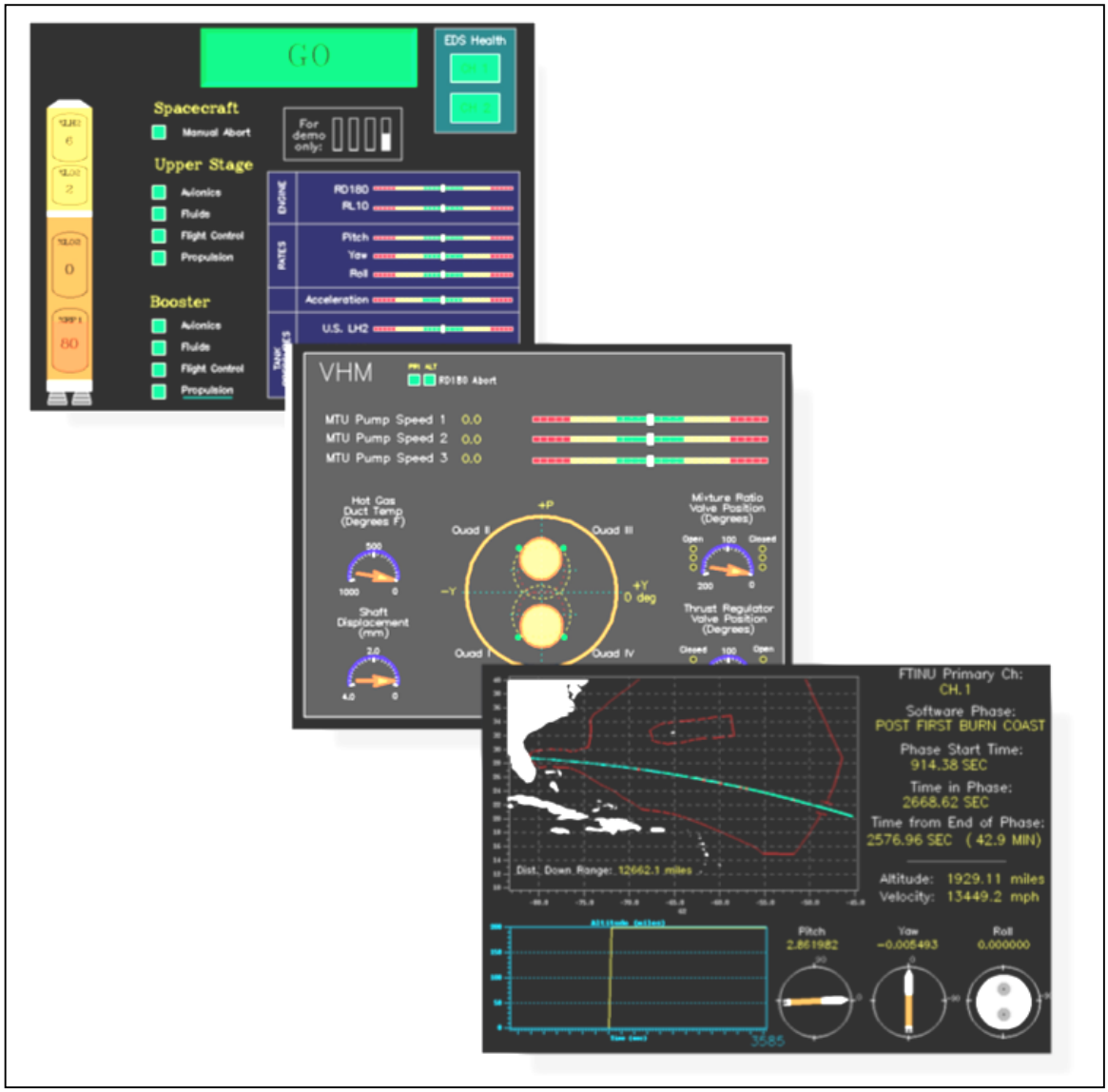
Image: United Launch Alliance CCDev EDS Prototype Demonstration and Test Bed Development is Supporting Multiple Commercial Crew Spacecraft Providers on Atlas & Delta

Progress:
Since March numerous software simulation runs have been generated and there results are under review by the EDS team. The EDS prototype system is working very well detecting the different failure scenarios used for the simulations. A formal demonstration for NASA officials later will occur by the end of 2010.

Quote:
"We've made tremendous strides during the past six months working with NASA and completing the EDS prototype system ahead of schedule," said George Sowers, ULA Vice President of Business Development and Advanced Programs. "The development of the EDS prototype system and testing has progressed

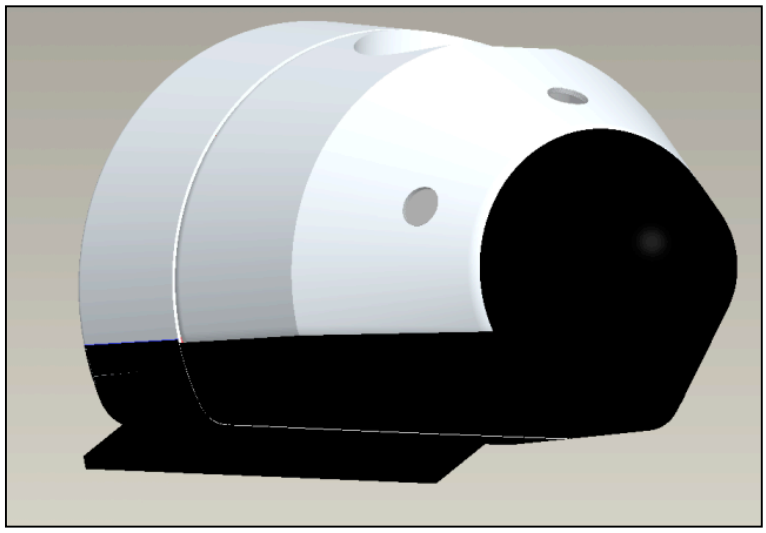
much quicker and smoother than anyone anticipated. We are excited about our upcoming formal demonstration for NASA's human space flight experts and astronauts and commercial crew spacecraft providers."

More Images:
- Right: CCDev EDS Prototype Electronics Box and System Integration Lab Test Bed
- Bottom: United Launch Alliance CCDev EDS Prototype Crew Displays Showing Overall System Health & Trajectory Profile



Blue Origin:

Overview:
Blue Origin is developing the orbital Space Vehicle, a reusable capsule to provide low-cost transportation to low Earth orbit (LEO) performing a variety of space missions, including flights for private astronauts, LEO science missions, as well as visits and extended stays to the International Space Station (ISS) and other space stations. Blue Origin is building on its suborbital development program to create a baseline of innovative technologies for the orbital Space Vehicle.



Working with NASA, Blue Origin conducted ground testing to retire aspects of two key risks to the orbital Space Vehicle's architecture: a pusher escape system and a composite pressure vessel cabin.

Progress:
Blue Origin has completed all milestones that were co-funded by NASA under the CCDev program.

Pusher Escape System - The orbital Space Vehicle is reusable and incorporates full-envelope crew escape capability in the event of an anomaly on the launch vehicle. Blue Origin vehicles will have an escape system mounted at the rear of the capsule in a 'pusher' configuration. The pusher escape system will remain with the vehicle, avoiding the flight-safety risk of a jettison event. The pusher escape system will not be consumed in a nominal mission, and so can be reused from mission to mission, lowering costs. Blue Origin used NASA co-funding to conduct thrust vector control (TVC) ground testing to measure control forces and to evaluate material performance during typical escape mission duty cycles.

Composite Pressure Vessel - Blue Origin has completed assembly and structural testing of a composite pressure vessel. No such structure has ever flown in a similar aerospace application. Under CCDev, Blue Origin retired risks related to joint development, leak rate, and structural loading. This was done by pressurizing the test article to evaluate the strength of the structural design, and conducting a drop test to test cabin structural integrity.

With the successful completion of all milestones co-funded by NASA under the CCDev program, Blue Origin is continuing its incremental development of the orbital Space Vehicle.

For more information:
Please visit http://www.blueorigin.com

Boeing and Bigelow Aerospace:

Boeing was selected in February 2010 as a winner of the CCDev Round 1 program. Bigelow Aerospace, an important member of the Boeing team, is part of the Commercial Spaceflight Federation. The following information on this page was provided from public sources only. Specifically, in September, Boeing released a public paper to the American Institute of Aeronautics and Astronautics (AIAA) describing recent progress on their system; see below:

Overview and Milestones: (from the September 2010 AIAA paper titled "Boeing CST-100 Commercial Crew Transportation System"):
"The CST-100 vehicle is a transportation system designed to safely, reliably, and affordably transfer crew from the Earth's surface to orbiting space complexes in low earth orbit, including the International Space Station (ISS) and the Bigelow Space Complex. The capsule-shaped vehicle can be lifted by a range of launch vehicles and can carry a maximum of seven crew members to accommodate requirements of multiple customers.

"… Boeing is executing a set of demonstrations to mitigate design and development risks for the CCDev initiative and is providing focused efforts on key technologies and capabilities that require additional maturation before they can be integrated into the overall system design. CCDev demonstration tasks include: Abort System Hardware; Base Heat Shield Fabrication; Avionics Software Integration Facility CST-100 performance simulation; CM [Crew Module] Pressure Vessel Fabrication; Landing System Hardware; Life Support Air Revitalization System; Automated Rendezvous and Docking with Integrated Guidance, Navigation, and Control; and a CM [Crew Module] Mockup.

"… With the CCDev Program, NASA set a goal of developing system concepts, key technologies, and capabilities that could ultimately be used in a commercial human space transportation system. Since contract award in February 2010, Boeing has made significant progress on long lead capabilities, technologies, and risk mitigation tasks. By contract's end, Boeing will have accelerated the development of the CST-100 by nine months, achieved the SDR milestone, and in cooperation with Bigelow Aerospace, will have conducted several significant technology and manufacturing demonstrations. Because of the CCDev Program, the CST- 100 has made marked progress towards becoming an operational system."

Images:
The Washington Post recently published pictures on this project which are available from the Washington Post website at:

http://www.washingtonpost.com/wp-dyn/content/gallery/2010/09/15/GA2010091505170.html

For more information on Bigelow Aerospace:
Please visit http://www.bigelowaerospace.com