

**Industry Overview**

The Denver South region<sup>1</sup> is a premier hub for the evolution of products and systems for commercial, military, and exploration applications. For these efforts, the Denver south region represents 19 percent of all aerospace employment in the nine-county Metro Denver and Northern Colorado region<sup>2</sup> and nearly 15 percent of all aerospace companies in the nine-county region are located in Denver South. The nine-county region ranked first in the nation for its high concentration of private aerospace jobs and ranked first out of the 50 largest metro areas in total private-sector employment.

Aerospace employment in the Denver South region increased for the third-consecutive year in 2019, rising 2 percent between 2018 and 2019. The Denver South region is home to nearly 4,720 employees in almost 30 companies, including major headquarters for United Launch Alliance (ULA), SEAKR Engineering, and Jeppesen, A Boeing Company. Additionally, major operations for Sierra Nevada Corporation, Oakman Aerospace, and UP Aerospace Inc. are located in the Denver South region. Approximately 1.4 percent of the nation’s aerospace employment is located in the region.

Nearly 43 percent of the region’s aerospace companies employed fewer than 10 people, while 21.4 percent employed 250 or more. Employees earned an average annual salary of \$137,400, which was over 23 percent higher than the national average. The aerospace industry provides highly skilled and high wage jobs, which is critical to Denver South’s employment base.

Four of the state’s nine major aerospace contractors have significant operations in the Denver South region. The region also receives support from the state’s major U.S. Department of Defense (DoD) facilities, National Aeronautics and Space Administration (NASA) research and development activities, and the Colorado Air and Space Port in Adams County. Further the state’s universities are among the world’s best for aerospace engineering and the state is a hub of aerospace innovation. In fact, Colorado’s share of NASA prime contract awards has grown from 2.4 percent in 2003 to 9.5 percent in 2018, totaling over \$1.4 billion.

The Denver South region’s aerospace industry includes a broad range of companies, products, and systems for commercial, military, and civil space applications. The region’s aerospace companies research, develop, design, and manufacture guided missiles, spacecraft, satellites and communications equipment, as well as navigation and detection instruments. Companies in the region also produce planetary spacecraft and launch systems, and provide mission support. The region offers an abundance of high-tech companies developing viable, cutting-edge technologies in fields such as energy, cybersecurity, and information technology providing a fertile environment for innovation opportunities with these cross-supporting sectors. Companies in the Denver South region have



**Aerospace Facts - 2019**

<b>2.1%</b>	Employment concentration
<b>4,720</b>	Employees
<b>2.0%</b>	Employment growth between 2018-2019
<b>64.7%</b>	Total company growth between 2014-2019

<sup>1</sup> The Denver South region consists of zip codes 80111, 80112, 80124, 80126, 80129, 80130, 80134, and 80237.

<sup>2</sup> The nine-county region is comprised of two principal areas, Metro Denver and Northern Colorado. Metro Denver consists of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties. Northern Colorado consists of Larimer and Weld counties.

access to over 500 aerospace companies and suppliers across the state providing space-related products and services.

The region's employers can choose from a large talent pool and are highly educated. Of the Denver South region's adult population, more than 62 percent of the population has a bachelor's degree or higher and nearly 98 percent have graduated from high school. The aerospace cluster offers a wide variety of engineering and science occupations including many types of engineers such as design, materials, systems, and software. These jobs in the Denver South region and across Colorado will continue to be in-demand. In fact, Colorado had the fifth-most attractive aerospace and defense market in the nation. According to Pricewaterhouse Coopers, the state's educated labor force and modern infrastructure support the aerospace industry and continue to attract major aerospace contractors. Approximately 3.8 percent of Denver South's labor force is employed in engineering and architecture occupations, compared with the U.S. average of 1.8 percent. The area is also a top market for science, technology, engineering, and mathematics (STEM) talent in the U.S.

The Denver South region is uniquely positioned in the nine-county region and provides a prime location for existing and potential aerospace companies to ship products and supplies across the globe. The region is served by I-25, C-470, I-225, and E-470, giving companies easy access to Denver International Airport (DEN), Centennial Airport, and downtown Denver. DEN is within four hours flying time or less of every North American city with a population of 1 million or more and offers nonstop service to 215 destinations in 14 countries. Businesses also have access to the Regional Transportation District's E and F light rail lines connecting the Denver South region to the rest of the metro area. Denver South is also in close proximity to Buckley Air Force Base in Aurora, which has an annual economic impact of nearly \$1 billion to the region.

### **2019 Industry Highlights**

Notable company announcements and expansions in the Denver South region included:

- Polaris Alpha, a defense contractor, is adding 150 software engineering, space technologies, cloud computing, and machine learning jobs to its Denver Tech Center office, part of a broader 450-job expansion planned in Colorado over the next eight years. The company plans to build or renovate 20,000 square feet of office space in the region.
- NASA's Launch Services Program selected Centennial-based ULA's Atlas V to launch the Lucy mission, which is the first mission to Jupiter's swarm of Trojan asteroids. The mission is scheduled to launch in October 2021.
- A ULA Atlas V rocket carried a Colorado-built satellite into orbit that is designed to provide U.S. weather forecasters unprecedented detail about severe weather formation. ULA provided the rocket, and Lockheed Martin built the GOES-S satellite. The GOES-series satellites are designed to help forecasters save lives from hurricanes, floods, tornadoes, and severe thunderstorms by providing nearly real-time updates of storm development.
- Highlands Ranch-based UP Aerospace successfully launched the SL-14 rocket in 2019, which carried a record-setting six experiments on board. Four of the payloads were provided by NASA's Flight Opportunities program and was funded under a NASA Tipping Point contract award to develop technologies for the orbital Spyder launch vehicle.
- Seven of the 15 companies listed in the *Denver Business Journal's* "Denver-Area Aerospace Companies" were located in the Denver South region in 2019. Sierra Nevada Corp. (fourth), ULA (sixth), SEAKR Engineering (seventh), Boom Supersonic (eighth), and RS&H Inc. (10th) were ranked among the top-10 largest Metro Denver aerospace companies.
- Highlands Ranch-based Oakman Aerospace Inc. developed a platform that can be customized to enable small- and medium-size companies to plan missions, launch small satellites, or determine how their

instruments will mesh with another company’s spacecraft. The company plans to expand its footprint and launch its ACORN platform with companies and agencies abroad. In July 2019, Oakman Aerospace sent its first product shipment to a foreign company under an export license.

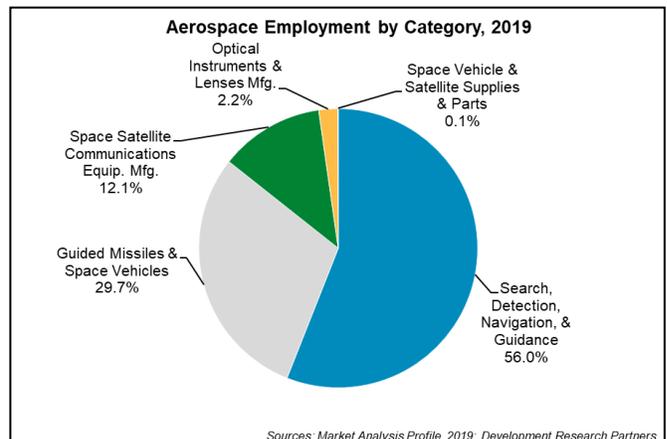
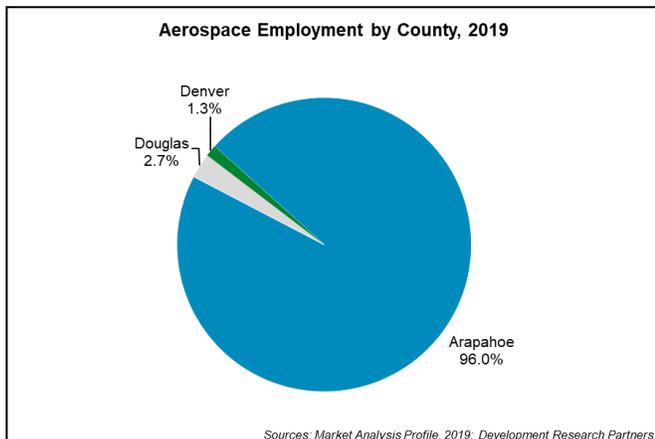
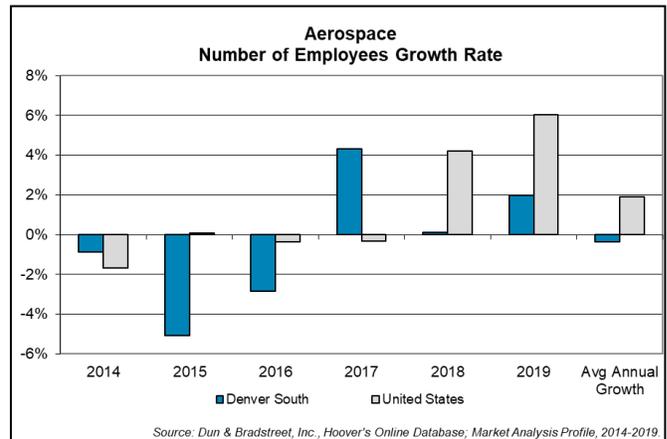
- Oakman Aerospace and Argentina-based ArsUltra S.A. signed a strategic Memorandum of Understanding (MOU) to collaborate on integrating their respective technologies and potential new technology creation. The new agreement indicates the companies’ shared intention to advance spacecraft development through Modular Open System Architectures (MOSA) along with standardization and interoperability constructs.
- Centennial-based SEAKR Engineering, Inc. will build digital RF processors for Saturn Satellite Networks (Saturn) small GEO satellite called NationSat. In alignment with Saturn’s mission of low weight, affordable satellite builds, SEAKR’s next generation RF processor, a software-defined radio (SDR), enables a highly integrated RF payload while minimizing overall system mass and power. SEAKR’s SDR is compact in design, made of light-weight materials and affords size, weight, and power (SWaP) best optimized for small satellites.

**Private Aerospace Economic Profile**

The aerospace cluster consists of 19, six-digit North American Industry Classification System (NAICS) codes including search, detection, and navigation instrument manufacturing; guided missile and space vehicle manufacturing; satellite telecommunications; and research and development.

Aerospace Employment and Company Profile, 2019		
	Denver South	United States
Direct employment, 2019	4,720	386,220
Number of direct companies, 2019	30	6,400
One-year direct employment growth, 2018-2019	2.0%	6.0%
Five-year direct employment growth, 2014-2019	-1.7%	9.9%
Avg. annual direct employment growth, 2014-2019	-0.3%	1.9%
Direct employment concentration	1.4%	0.2%

Sources: Dun & Bradstreet, Inc., Hoover’s Online Database; Market Analysis Profile, 2014-2019; Development Research Partners.



### Major Aerospace Contractors

Four of the state's nine major space contractors have a presence in the Denver South region. These companies support the U.S. Department of Defense (DoD) to procure, place, and manage national space assets for the military. They also provide manned and unmanned spacecraft, instrumentation, and ground control services for the National Aeronautics and Space Administration (NASA) and other agencies.



**The Boeing Company** has several locations throughout Colorado with the largest concentrations in Arapahoe County and Colorado Springs. Core business activities include: Jeppesen, a subsidiary of Boeing that provides navigational information to commercial, business, and military aviation; strategic missile defense systems; space and intelligence and Global Positioning System (GPS) support; and Boeing military aircraft support at Fort Carson. [www.boeing.com](http://www.boeing.com)



**Lockheed Martin** develops products ranging from human space flight systems and navigation, meteorological, and communications satellites to ground station and missile defense systems. Over 3 percent of the nine-county region's Lockheed Martin employees are concentrated in the Denver South region. [www.lockheedmartin.com](http://www.lockheedmartin.com)



**Sierra Nevada Corporation's (SNC) Space Systems** business area, located in Louisville, develops subsystems and components for space applications, is a prime contractor for small satellites, and owns and operates the *Dream Chaser*<sup>®</sup> spacecraft. The company's two Centennial divisions—the **ISR (Intelligence, Surveillance & Reconnaissance)**, **Aviation, and Security (IAS)** and the **Electronic and Information Systems (EIS)**—provide products and services for a variety of airborne systems. [www.sncorp.com](http://www.sncorp.com)



**United Launch Alliance (ULA)** With more than a century of combined heritage, ULA is the nation's most experienced and reliable launch service provider. ULA employs nearly half of its workforce at its Centennial headquarters. ULA's program management, engineering and mission support functions are concentrated in Colorado. This includes development of ULA's new Vulcan Centaur rocket. [www.ulalaunch.com](http://www.ulalaunch.com)

### Additional Major Private Aerospace Companies

- BAE Systems  
[www.baesystems.com](http://www.baesystems.com)
- EchoStar Corp.  
[www.echostar.com](http://www.echostar.com)
- General Atomics Electromagnetic Systems Group  
[www.ga.com](http://www.ga.com)
- Oakman Aerospace, Inc.  
[www.oak-aero.com](http://www.oak-aero.com)
- SEAKR Engineering, Inc.  
[www.seakr.com](http://www.seakr.com)
- Trimble  
[www.trimble.com](http://www.trimble.com)
- UP Aerospace Inc.  
[www.upaerospace.com](http://www.upaerospace.com)

### Industry Infrastructure Support





### Private Aerospace Workforce Profile

With 62.5 percent of the adult population having a bachelor's degree or higher, the Denver South region provides a highly educated labor base with industry specific skills and talent. According to CityLab, Denver ranked among the top 10 cities with the highest share of college-educated adults and the highest share of adults with a graduate degree in 2019. Denver also ranked No. 3 on SmartAsset's list for "The Best Cities for Young Professionals – 2019." The region is near aerospace-related programs and research at the Colorado School of Mines in Golden and various federal laboratories in Boulder. The STEM School Highlands Ranch is a partner with Lockheed Martin and Colorado School of Mines providing Aerospace Teacher Enhancement Workshops. Further, STEM School Highlands Ranch is one of only five schools in Colorado approved as a P-TECH School (Pathways in Technology Early College High Schools). The University of Colorado receives more NASA funding than any other public university and is a leading university for training astronauts.

#### Age Distribution

The aerospace cluster in the nine-county region has a larger share of employees that are between the ages of 35 and 64 years old (71.3 percent), compared with the age distribution across all industries (57.9 percent). Specifically, the largest share of workers in the aerospace cluster were between the ages of 45 and 54 years old.

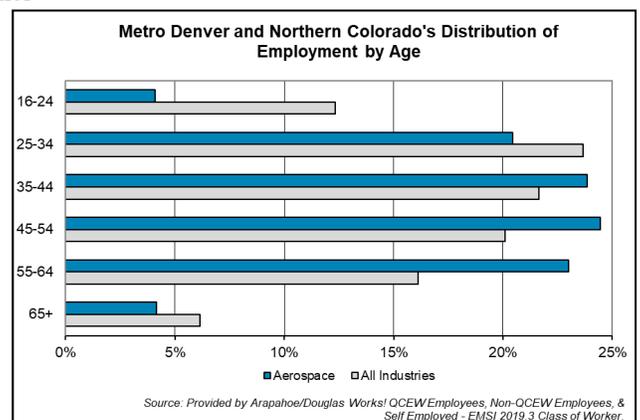
#### Wages

Wages in the aerospace cluster are among the highest across all industry clusters. The 2018 average annual salary was \$137,400, compared with \$111,480 nationwide, or 23.3 percent more than the national average. Total payroll exceeded \$3 billion in 2018.

#### Occupation & Salary Profile

The Occupation & Salary Profile below includes the 10 largest aerospace occupations in the region. For these 10 largest occupations, the chart details the total number of workers employed in that occupation across all industries, the number of

- Metro Denver & Northern Colorado's Educational Programs with Largest Number of Aerospace-related Graduates
- Accounting
  - Biology/Biological Sciences, General
  - Business Administration & Management, General
  - Civil Engineering, General
  - Computer Science
  - Electrical & Electronics Engineering
  - Finance, General
  - Information Technology
  - Mechanical Engineering
  - Physiology, General



available applicants that would like to be working in that occupation, the number of recent graduates that are qualified for that occupation, and the median and sample percentile annual salaries.

**Metro Denver and Northern Colorado Aerospace Occupation & Salary Profile, 2019**

<b>10 Largest Aerospace Occupations in Metro Denver and Northern Colorado</b>	<b>Total Working Across All Industries (2019)</b>	<b>Number of Available Applicants (2019)</b>	<b>Number of Graduates (2018)</b>	<b>Median Salary</b>	<b>10th Percentile Salary</b>	<b>25th Percentile Salary</b>	<b>75th Percentile Salary</b>	<b>90th Percentile Salary</b>
1. Business operations specialists, all other	36,497	963	53	\$75,567	\$43,759	\$56,278	\$100,452	\$129,838
2. Software developers, systems software	9,079	240	1,511	\$117,148	\$79,219	\$94,253	\$145,575	\$177,703
3. Electrical, electronic, & electromechanical assemblers, except coil winders, tapers, & finishers	4,745	125	10	\$33,910	\$25,315	\$28,368	\$40,945	\$51,005
4. Software developers, applications	27,310	720	1,368	\$104,774	\$62,917	\$81,992	\$130,715	\$157,967
5. Aerospace engineers	1,801	48	296	\$115,319	\$69,125	\$84,934	\$154,863	\$194,600
6. Electronics engineers, except computer	4,802	127	547	\$99,503	\$65,134	\$77,372	\$131,761	\$160,007
7. Mechanical engineers	4,377	115	1,060	\$92,628	\$58,581	\$71,737	\$123,501	\$168,317
8. Industrial engineers	2,928	77	3	\$96,931	\$61,363	\$75,569	\$120,213	\$144,012
9. Aircraft structure, surfaces, rigging, & systems assemblers	611	16	118	\$51,214	\$29,068	\$36,420	\$63,280	\$75,444
10. Buyers & purchasing agents	7,318	196	93	\$63,302	\$35,709	\$47,081	\$83,521	\$104,150

Notes: The number of available applicants is a point-in-time measurement of the number of people who have registered in Colorado’s workforce development system’s statewide database, Connecting Colorado, as being able and available to work in a particular occupation. Results should be interpreted with caution since registration in Connecting Colorado is self-reported. In addition, the skills rubric may assign up to four occupation codes for each registrant. Therefore, the number of available applicants could be inflated. *Source: Provided by Arapahoe/Douglas Works!; QCEW Employees, Non-QCEW Employees, & Self Employed - EMSI 2019.3 Class of Worker.*

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