

## Aerospace Industry



### Major Clusters in Alabama's Diverse Aerospace Industry



#### **Space & Defense**

The space/defense cluster of Alabama's aerospace industry is centered around Huntsville in north Alabama. Major companies include Aegis Technologies, Boeing, COLSA Corporation, Lockheed Martin, PPG Aerospace and Teledyne Brown Engineering. In addition to its Huntsville facilities, Boeing Company also manufactures common core boosters for the Delta IV rocket and performs final assembly of Delta II rockets in Decatur. In southeast Alabama, Pike County's Lockheed Martin plant assembles missiles. In 2006, EADS, the second largest aerospace/defense company in the world, opened an Airbus engineering center in Mobile. Northrop Grumman and EADS have selected Mobile, AL as the planned production site to build its next-generation fleet of aerial refueling tankers, dependent upon securing the Department of Defense contract. The

estimated \$40 billion contract is the largest single Air Force procurement in history. The two companies plan to assemble and modify their tankers in a pair of new plants at the Brookley Field Industrial Complex, creating 1,500 jobs.



#### **Aviation**

Aviation companies targeted for both the commercial and defense sectors are located throughout the state, with concentrations in central and southeast Alabama. Area companies include GKN Aerospace, with facilities in Montgomery and Tallassee, and Kelly Aerospace in Montgomery. In the south Alabama cities of Abbeville and Mobile, Teledyne Continental Motors employs more than 450 workers in the manufacture of engines, components and ignition systems for general aviation.



#### **Maintenance, Repair & Overhaul (MRO)**

The MRO industry is spread across the state. Pemco World Air Services facility in Dothan provides maintenance services for numerous rotary wing aircraft as well as heavy maintenance and major modifications on wide-body and narrow-body aircraft. Alabama Aircraft Industries in Birmingham provides a full range of aviation maintenance and modification services for both U.S. and foreign military, with a specialization in cargo planes. In Mobile, ST Mobile Aerospace Engineering focuses on providing scheduled maintenance and major modifications to wide-body and narrow-body aircraft. In Pike County, Sikorsky Support Services has helicopter service operations. In addition, U.S. Helicopter operates a large helicopter service facility in Dale County to serve Fort Rucker. AcroHelipro operates a helicopter repair and overhaul facility in Andalusia. In 2006, Aerospace Integration Corporation announced that the company would open a new modification facility in Albertville, Alabama integrating enhanced technology into military helicopters.

### **Employment**

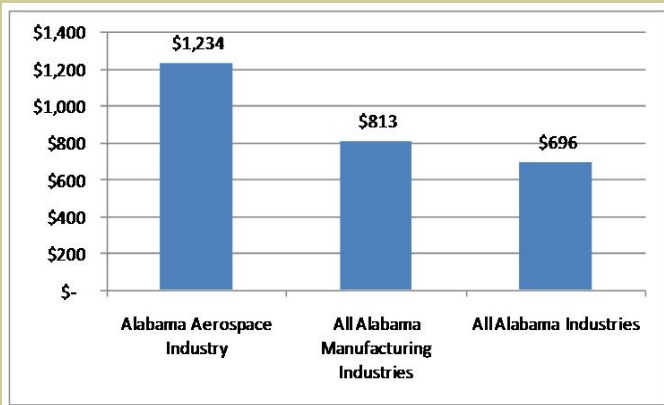
- 73,032 employees in 2002 (civilian/federal)
- 139,601 aerospace jobs (direct/indirect)
- 36% Engineering and R&D services
- 19% Aircraft maintenance, repair and overhaul (MRO)
- 16% Information technology services
- 14% Guided missile and space vehicle manufacturing
- 6% Guided missile and space vehicle parts manufacturing
- 6% Aircraft parts manufacturing and MRO
- 3% General manufacturing

### **Fast Facts**

- Alabama ranks 12<sup>th</sup> nationally for Department of Defense Prime Contracts – Over \$6.9 Billion in FY 2006.
- Alabama's Marshall Space Flight Center received \$2.5 billion in FY 2007 representing 15.3% of NASA's total budget.
- Alabama is home to over 300 aerospace companies.
- Aerospace equipment and parts exports were valued at over \$293 million in 2007.

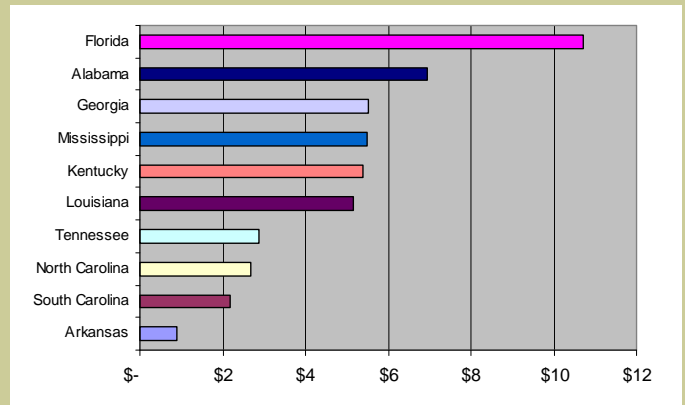
# Alabama Aerospace Industry Profile

Alabama Average Weekly Wage: 2006

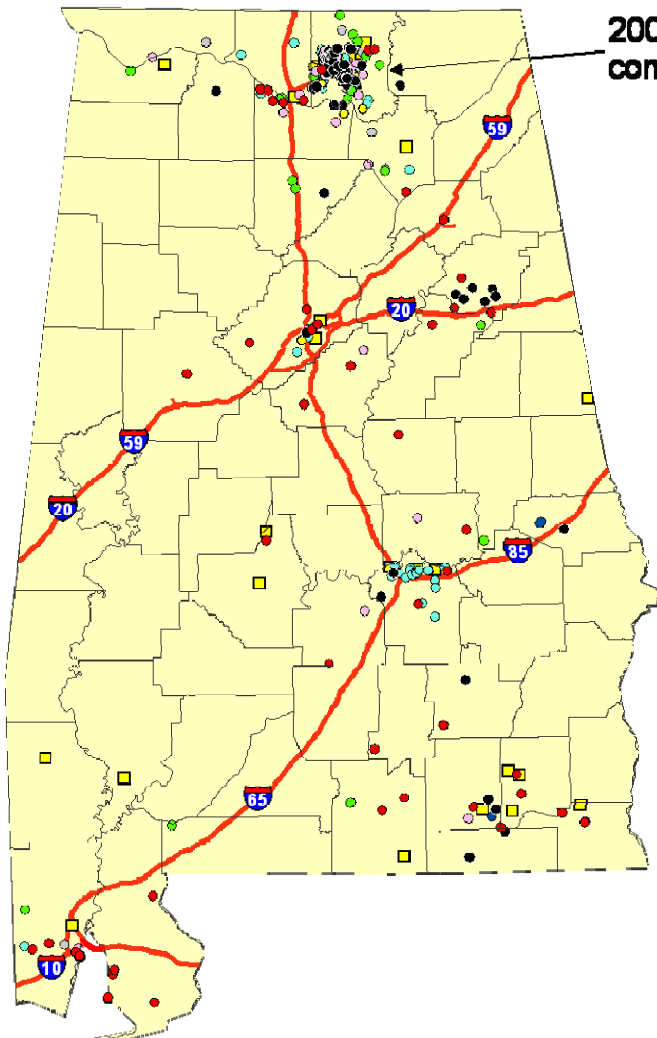


Source: U.S Department of Labor-Bureau of Labor Statistics, 2007

Southern States Receiving Prime Defense Contracts (\$Billions), FY 2006



Source: Department of Defense-2007



200+ companies

## Aerospace Companies in Alabama

### Legend

- Aircraft Parts/Maintenance
- Defense
- Electronics
- Engineering Services
- Machining/Injection Moldings
- R & D/Technology Transfer/Software Systems
- Space Vehicles/Components/Operations
- Search/Detection/Navigation Systems
- Misc. Services

380+ companies statewide

Source: 2007 EDPA Aerospace Database

### Redstone Arsenal

Established in 1941, Redstone Arsenal has been at the forefront of U.S. Army and NASA aerospace developments. The arsenal is home to Marshall Space Flight Center, the U.S. Army Aviation and Missile Command, and the U.S. Army Space and Missile Defense Command. The Arsenal's advanced research and development of weapons used on land and in space is unmatched. Over 14,000 military and civilian personnel work at Redstone.

As a result of the 2005 BRAC (Base Realignment and Closure Commission) 4,800 jobs will be relocating to Redstone Arsenal. Seven different entities will move to Redstone as part of BRAC 2005: U.S. Army Material Command; U.S. Army Security Assistance Command; U.S. Army Space and Missile Defense Command; Missile Defense Agency; U.S. Army's Aviation Technical Test Center; Rotary Wing Air Platform Research, Development, Acquisition, Test and Evaluation; and the U.S. Army 2<sup>nd</sup> Recruiting Brigade. At the conclusion of BRAC, Redstone will be home to 17 commands at the conclusion of the BRAC process.

### Marshall Space Flight Center

Headquartered within Redstone Arsenal, MSFC employs over 8,600 workers (2,600 civil service employees and 6,000 employees of contractors). The center houses the following programs: Advanced Space Transportation Program, Center for Excellence for Space Propulsion, Center for Microgravity, Center for Space Transportation Systems, Chandra X-Ray Observatory, Earth and Science Research and International Space Station. MSFC is also home to the U.S. Space and Rocket Center, which hosts over 300,000 visitors annually.

### Fort Rucker

Located near Ozark, Fort Rucker is the home of U.S. Army Aviation. Fort Rucker trains helicopter pilots for the Army and other international organizations. Fort Rucker employs over 8,000 military and civilian workers.

### Maxwell Air Force Base

Located in Montgomery, Maxwell Air Force base employs over 4,000 military and civilian personnel. Maxwell is home to the Air University for professional military education. The academic training of Air Force officers at Maxwell and the computer support at its Gunter annex is used worldwide.

### National Space Science and Technology Center

The Huntsville based NSSTC is a partnership between NASA's Marshall Space Flight Center, Alabama universities, federal agencies, and industry. The laboratory is for cutting-edge research in selected scientific and engineering disciplines. The NSSTC houses the following centers: Space Science Research, Global Hydrology and Climate, Information Technology Research, Advanced Optics and Energy Technology, Propulsion Research, Biotechnology Research and Materials Science Research.

## U.S. Department of Defense Prime Contracts in Alabama by Major Procurement Program FY 2006

Total DoD Prime Contracts to Alabama		\$6,953,755,219	
Procurement Program	Amount	Procurement Program	Amount
Aircraft Engines and Spares	\$4,514,977	Non-Combat Vehicles	\$44,134,009
Airframes and Spares	\$100,164,000	Other Aircraft Equipment	\$28,158,615
All Other Supplies and Equipment	\$412,187,054	Other Fuels and Lubricants	\$79,912
Ammunition	\$3,276,741	Petroleum	\$235,584,107
Building Supplies	\$2,955,703	Photographic Supplies and Equipment	\$13,732,200
Combat Vehicles	\$273,361,391	Production Equipment	\$3,361,584
Construction	\$370,107,026	Services	\$3,928,951,633
Construction Equipment	\$3,463,467	Ships	\$32,345,372
Containers and Handling Equipment	\$1,426,946	Subsistence	\$28,702,547
Electronics and Communication Equip	\$158,106,657	Textiles, Clothing and Equipage	\$84,523,774
Materials Handling Equipment	\$5,871,260	Transportation Equipment	\$54,538
Medical/Dental Supplies/Equipment	\$112,346,450	Weapons	\$41,516,508
Missile and Space Systems	\$1,064,828,748		



## Redstone Arsenal



### U.S. Army Materiel Command

AMC is an Army Major Command responsible for materiel readiness including technology, acquisition support, materiel development, logistics power projection and sustainment. The Command's missions range from development of weapon systems and research to maintenance and distribution of parts and supplies.



### U.S. Army Aviation & Missile Command

AMCOM provides support to joint warfighters and allies to ensure aviation and missile system readiness for combat operations. The Command is responsible for the development, acquisition and fielding of aviation and missile systems and the integration of aviation and missile technology.



### U.S. Army Security Assistance Command

USASAC supports the National Security Strategy through the management of Army security assistance programs including annual foreign military sales of more than \$5 billion to approximately 140 allied countries, friendly nations and multinational organizations.



### U.S. Army Aviation and Missile Research Development and Engineering Center

AMRDEC is the Army's focal point for providing research, development, and engineering technology and services for aviation and missile platforms. AMRDEC manages and conducts research, exploratory and advanced development, and provides one-stop lifecycle engineering and scientific support for aviation and missile systems and UAV/UGV platforms.



### Program Executive Office — Missiles and Space

The PEO Missiles and Space provides centralized management for all Army tactical and air defense missile programs and selected Army space programs. The PEO was established in January 2005 with the merger of PEO Air, Space and Missile Defense and the PEO Tactical Missiles.



### Program Executive Office — Aviation

The PEO Aviation is the Army manager responsible for providing overall direction and guidance for the development, acquisition, testing, product improvement and fielding of Army Aviation systems including the Apache Helicopter, Cargo Helicopter, Utility Helicopter, Unmanned Aircraft System and Armed Scout Helicopter.



### Redstone Technical Test Center

RTTC is a U.S. Army Test and Evaluation Command and is one of the eight test centers that comprise the Development Test Command headquartered at the Aberdeen Proving Ground in Maryland. RTTC's primary service is to provide advanced testing of weapon systems for the Department of Defense, its contractors and friendly governments.



### U.S. Army Aviation Technical Test Center

ATTC is the Army's premier aviation development flight test organization and is an internationally recognized center of excellence for test and evaluation. ATTC plans, conducts, analyzes and reports on the development and airworthiness qualification of rotary and fixed wing aircraft, aviation systems and associated support equipment.



### Missile Defense Agency

MDA is a Department of Defense agency that facilitates the development and integration of multi-service capabilities into seamless theater missile defense systems. MDA is also responsible for guiding the development of a missile defense system capable of defending the U.S. from a foreign missile attack.



### U.S. Army Space & Missile Defense Command

SMDC is responsible for developing the Army's missile defense systems including support of space and ground-based midcourse defense and assuring the Army's access to and utilization of space assets in the execution of their mission.



### Defense Intelligence Agency — Missile & Space Intelligence Center

MSIC is an intelligence organization charged with producing scientific and technological intelligence on adversary surface-to-air missiles and ballistic missile systems. This intelligence includes characteristics, capabilities and limitations of foreign military systems.

### Redstone General Officers

Commanding General (AMC)	★★★★★
Deputy Commander (AMC)	★★★★
Commanding General (SMDC)	★★★★
Chief of Staff (AMC)	★★★
DCS Operations (AMC)	★★
Commanding General (AMCOM)	★★
Deputy PEO (PEO Aviation)	★★
Program Executive Office (PEO Missile and Space)	★★
Commanding General (USASAC)	★★
Deputy for Test Integration and Fielding (MDA)	★★
Program Director GMD (MDA)	★★
	★

★ Coming with BRAC    ★ Currently at Redstone

Company	County	Product	Jobs Created	Investment (Millions)
<b>2008</b>				
BAE Systems	Calhoun	Armor panels for military vehicles	25	N/A (Expansion)
GKN	Elmore	Aircraft parts	20	N/A (Expansion)
<b>2007</b>				
ST Mobile Aerospace	Mobile	Conversion of passenger jets into cargo freighters	200	N/A (Expansion)
General Dynamics Land Systems	Calhoun	Production of MRAP	270	\$2.6 (Expansion)
Acrohelipro	Covington	Helicopter maintenance	50	\$4.5 (New)
Lockheed Martin Space Systems	Lawrence	Ordnance assembly	N/A	\$27 (Expansion)
MEI	Madison	System integration	40	N/A (Expansion)
Westwind Technologies	Madison	Helicopter flight simulation	60	N/A (Expansion)
BAE Systems	Walker	Ammunition magazine and missile launchers for naval vessels	40	\$19.1 (New)
<b>2006</b>				
Raytheon Company	Madison	Engineering, management, customer support and business development	350	\$23.7 (New)
Sparta Inc.	Madison	Defense and intelligence engineering	N/A	N/A (New)
EADS Casa N. America/Raytheon Cargo	Mobile	Military joint cargo aircraft delivery center	150	N/A (New)
BAE Systems	Marshall	Systems modifications and tech insertion for rotary wing aircraft	40	N/A (New)
<b>2005</b>				
EADS, North America	Mobile	Aircraft engineering, KC330 refueling tanker assembly	1,150	\$600 (New)
EJM Aerospace Services	Covington	Military/commercial aircraft maintenance, repair and overhaul	75	\$75 (New)
GKN Aerospace Services AL	Elmore	High performance composites	250	\$21.8 (Expansion)
Northrop Grumman	Mobile	KC -30 Production center	N/A	N/A (New)
Westar Aerospace & Defense Group, Inc.	Madison	Specialized technology services for government and aerospace industry	200	\$10.9 (Expansion)



Boeing Rocket Assembly



KC-45 Tanker



ST Mobile Aerospace



## Major Milestones

- 1930s: Maxwell Air Force Base became the designated home of the U.S. Army Air Force Tactical School for professional military education.
- 1940s: Redstone Arsenal was established in Huntsville.
- 1950s: Wernher Von Braun came to Huntsville.
- 1960s: Marshall Space Flight Center (MSFC) opened at Redstone Arsenal, making Huntsville a major center for the future development of rockets and space exploration.
- Apollo 4 launched using the Saturn V rocket developed at MSFC.
- 1970s: The Alabama Space and Rocket Center opened in Huntsville, becoming the future site of the U.S. Space Camp and Space Academy.
- The Lunar Roving Vehicle, built in Huntsville, was driven on the moon.
- 1980s: The first Space Shuttle mission was powered into orbit by the main engine and solid rocket boosters developed by the Marshall Space Flight Center.
- Lockheed Martin moved its smart missile operations from Orlando, Florida to Troy, Alabama.
- 1990s: The Army's Aviation and Missile Command moved to Huntsville.
- 1998: Boeing announced that the Delta IV rocket would be built in Decatur.
- 2003: All Boeing Delta IV rockets are consolidated to Alabama for production.
- 2005: EADS, North America announced it will build an aircraft engineering center and future production facility for KC-30 aerial refueling tankers.

### *Alabama: First to the Moon and Beyond*

