

## DEFENSE INDUSTRIAL BASE ASSESSMENT: U.S. Space Industry 'Deep Dive'

### Survey for Universities



#### SCOPE OF ASSESSMENT

The U.S. Department of Commerce, Bureau of Industry and Security (BIS), Office of Technology Evaluation (OTE), in coordination with the U.S. Air Force, the National Aeronautics and Space Administration (NASA), and the National Reconnaissance Office (NRO), is conducting an industrial base survey and assessment of the U.S. space industry. Your organization has been identified as a direct and/or indirect supplier of products and/or services to the U.S. Government for space-related applications.

The principal goal of this assessment is to gain an understanding of the intricate supply chain network supporting the development, production and sustainment of products and services across the defense, intelligence, civil and commercial space sectors. The data will also be used to understand the multi-tier structure of the U.S. space industry, its interdependencies, and the commonality of suppliers and products across programs and agencies. Historically, the U.S. Government has had limited visibility into the issues and challenges facing the lower tiers of the space industrial base. Through the data collected in this survey, agencies will be better informed in order to develop targeted planning, acquisition, and investment strategies to ensure the ability of the industry to support critical defense and civil missions and programs. In addition, this survey will allow you to highlight your organization's unique skills and capabilities to the U.S. Government.

#### RESPONSE TO THIS SURVEY IS REQUIRED BY LAW

A response to this survey is required by law (50 U.S.C. app. Sec. 2155). Failure to respond can result in a maximum fine of \$10,000, imprisonment of up to one year, or both. Information furnished herewith is deemed confidential and will not be published or disclosed except in accordance with Section 705 of the Defense Production Act of 1950, as amended (50 U.S.C App. Sec. 2155). Section 705 prohibits the publication or disclosure of this information unless the President determines that its withholding is contrary to the national defense. Information will not be shared with any non-government entity, other than in aggregate form. The information will be protected pursuant to the appropriate exemptions from disclosure under the Freedom of Information Act (FOIA), should it be the subject of a FOIA request.

Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number.

#### BURDEN ESTIMATE AND REQUEST FOR COMMENT

Public reporting burden for this collection of information is estimated to average 14 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information to BIS Information Collection Officer, Room 6883, Bureau of Industry and Security, U.S. Department of Commerce, Washington, D.C. 20230, and to the Office of Management and Budget, Paperwork Reduction Project (OMB Control No. 0694-0119), Washington, D.C. 20503.

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

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**Important Note:**

The drop-down menus in Sections 3-6 are based on your responses to prior sections. In order for them to work properly, you must complete Sections 3-6 in order.

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Section I GENERAL INSTRUCTIONS	
A.	Your organization is required to complete this survey using an Excel template, which can be downloaded from the U.S. Department of Commerce, Bureau of Industry and Security (BIS) website: <a href="http://www.bis.doc.gov/SpaceDeepDiveUni">www.bis.doc.gov/SpaceDeepDiveUni</a> . At your request, survey support staff will e-mail the Excel survey template directly to your organization. For your convenience, a PDF version of the survey is available on the BIS website to aid internal data collection. DO NOT submit the PDF version of your organization's response to BIS.
B.	Respond to every question. Surveys that are not fully completed will be returned for completion. Use comment boxes to provide any information to supplement responses provided in the survey form. Make sure to record a complete answer in the cell provided, even if the cell does not appear to expand to fit all the information.  <b>DO NOT COPY AND PASTE RESPONSES WITHIN THIS SURVEY.</b> Survey inputs should be made manually, by typing in responses or by use of a drop-down menu. The use of copy and paste can corrupt the survey template. If your survey response is corrupted as a result of copy and paste responses, a new survey will be sent to you for immediate completion.
C.	<b>Do not disclose any classified information in this survey form.</b> However, aggregated employment, R&D expenditures, etc. are permitted.
D.	If information is not available from your organization's records in the form requested, you may furnish estimates.
E.	In some questions on this survey, definitions of terms are included in comment boxes. These are noted by the small red triangle in the upper-right corner of a relevant box. To see the definition, move your mouse over the box with the red triangle.
F.	Questions related to this Excel survey should be directed to:  <a href="mailto:SpaceDeepDiveUni@bis.doc.gov">SpaceDeepDiveUni@bis.doc.gov</a> (E-mail is the preferred method of contact).  You may also speak to a member of BIS survey support staff by calling (202) 482-7808.
G.	Upon completion, review and certification of the Excel survey, transmit the survey via e-mail attachment to: <a href="mailto:SpaceDeepDiveUni@bis.doc.gov">SpaceDeepDiveUni@bis.doc.gov</a> . Be sure to retain a copy for your records.
H.	For questions related to the overall scope of this Industrial Base assessment, contact:  Brad Botwin, Director, Industrial Studies Office of Technology Evaluation, Room 1093 U.S. Department of Commerce 1401 Constitution Avenue, NW Washington, DC 20230  To contact Mr. Botwin, please call (202) 482-7808.  DO NOT submit completed surveys to Mr. Botwin's postal or personal e-mail address; all surveys must be submitted electronically to <a href="mailto:SpaceDeepDiveUni@bis.doc.gov">SpaceDeepDiveUni@bis.doc.gov</a>
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Section II		Definitions
Term	Definition	
Applied Research	Systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. This activity includes work leading to the production of useful materials, devices and systems or methods, including design development and improvement of prototypes and new processes.	
Authorizing Official	Executive officer of the organization or business unit or other individual who has the authority to execute this survey on behalf of the organization.	
Basic Research	Systematic, scientific study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts.	
Commercial and Government Entity (CAGE) Code	Commercial and Government Entity (CAGE) Code identifies companies doing or wishing to do business with the U.S. Federal Government. The code is used to support mechanized government systems and provides a standardized method of identifying a given facility at a specific location. Find CAGE codes at <a href="http://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx">http://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx</a>	
Component	Any raw material, substance, piece, part, software, firmware, labeling, or assembly which is intended to be included as part of the finished, packaged, and labeled device.	
Cost-Plus Contract	A contractor is paid for all of its allowed expenses to a set limit plus additional payment to allow for a profit. Also referred to as a cost reimbursement contract.	
Counterfeit	For the purpose of this survey, a counterfeit is a part, material, or other product that is not genuine because it 1) is an unauthorized copy; 2) does not conform to original design, model, and/or performance standards; 3) is not produced by the original manufacturer or is produced by unauthorized contractors; 4) is off-specification, defective, or used product sold as "new" or working; or 5) has incorrect or false markings and/or documentation.	
Customer	An entity to which an organization directly delivers the product or service that the facility produces. A customer may be another company or another facility owned by the same parent organization. The customer may be the end user for the item but often will be an intermediate link in the supply chain, adding additional value before transferring the item to yet another customer.	
Data Universal Numbering System (DUNS)	A nine-digit numbering system that uniquely identifies an individual businesses. Find DUNS numbers at <a href="http://fedgov.dnb.com/webform">http://fedgov.dnb.com/webform</a>	
Distributor	An entity that buys noncompeting products or product lines, warehouses them, and resells them to retailers or direct to the end users or customers.	
Finished Product	Any product, or accessory to any product, that is suitable for use or capable of functioning, whether or not it is packaged or labeled.	
Firm-Fixed-Price (FFP) Contract	Contract price is the price bid, with no incentives or fees added. Cost responsibility is placed wholly on the contractor.	
Full Time Equivalent (FTE) Employees	Employees who work for 40 hours in a normal work week. Convert part-time employees into "full-time equivalents" by taking their work hours as a fraction of 40 hours.	
Indefinite-Quantity Contract	A contract that provides for furnishing an indefinite quantity, within stated limits, of specified supplies or services, during specified contract period, with deliveries to be scheduled by the timely placement of orders upon the contractor.	
Indefinite-Delivery Contract	A type of contract used when the exact time of delivery is not known.	
Labor-Hours Contract	A variation of the time-and-materials contract, differing only in that materials are not supplied by the contractor.	
Manufacturer	An organization that uses labor and capital to convert raw materials into finished or semifinished goods. For the purpose of this survey, manufacturing includes integration and assembly.	
Manufacturing Material	Any material or substance used in or used to facilitate the manufacturing process, a concomitant constituent, or a byproduct constituent produced during the manufacturing process, which is present in or on the finished device/product.	
North American Industry Classification System (NAICS) Code	North American Industry Classification System (NAICS) codes identify the category of product(s) or service(s) provided by your organization. Find NAICS codes at <a href="http://www.census.gov/epcd/www/naics.html">http://www.census.gov/epcd/www/naics.html</a>	
Precious Metals	Metals that have high economic value due to their rarity. Most commonly gold, silver, platinum, and palladium.	
Product/Process Development	Conceptualization and development of a product prior to the production of the product for customers.	
Rare Earth Element	A category that includes element numbers 57-71 of the periodic table (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, and ytterbium) as well as yttrium (39) and scandium (21).	
Requirements Contract	An indefinite-delivery type contract that provides for filling all actual purchase requirements of specific supplies or services of designated activities during a specified contract period with deliveries to be scheduled by the timely placement of orders upon the contractor.	
Service	An intangible product (contrasted to a good, which is a tangible product). Services typically cannot be stored or transported, are instantly perishable, and come into existence at the time they are bought and consumed.	
Single Source	An organization that is designated as the only accepted source for the supply of parts, components, materials, or services, even though other sources with equivalent technical know-how and production capability may exist.	
Sole Source	A organization that is the only source for the supply of parts, components, materials, or services. No alternative U.S. or non-U.S. based suppliers exist other than the current supplier.	

Space-Related	Any product, service, or object that is a) used in or launched into space; b) used to directly or indirectly support space applications from Earth; and/or c) used to manufacture any product that is used in space or directly supports space applications. The product, service, or object does not have to be specifically intended to support space applications.
STEM	STEM stands for Science, Technology, Engineering and Mathematics.
Supplier	An entity from which your organization obtains inputs. A supplier may be another firm with which you have a contractual relationship, or it may be another facility owned by the same parent organization. The inputs may be goods or services.
Time-and-Materials Contracts	A time-and-materials contract may be used only when it is not possible at the time of placing the contract to estimate accurately the extent or duration of the work or to anticipate costs with any reasonable degree of confidence.
United States	The "United States" or "U.S." includes the 50 states, Puerto Rico, the District of Columbia, the island of Guam, the Trust Territories, and the U.S. Virgin Islands.
Utilization Rate	The fraction of an organization's potential output that is actually being used in current production, where potential output is based on a 7 day-a-week, 3x8-hour shift production schedule.
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**Section III Respondent Profile**

Your organization has been identified by the United States Government as a direct or indirect supplier of products and/or services used for space-related activities.

For the purposes of this survey, a product is a tangible good. A service is an intangible item or process which includes, but is not limited to, distribution, inspection, maintenance, management, material preparation, design, research and development, testing, etc.

If you feel your organization should be exempt from this survey, please e-mail your request, with your reasoning, to [SpaceDeepDiveUni@bis.doc.gov](mailto:SpaceDeepDiveUni@bis.doc.gov).

A. Select the description that best identifies your organization:	
From the list below, identify any of the market segments that your organization currently serves:	
Aircraft	
Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR)	
Electronics	
B. Energy	
Ground Vehicles (Military)	
Healthcare	
Missiles	
Ships	
Space	
Other (specify)	

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Section 1.a Organization Information						
Provide the following information for the level at which your organization is responding to this survey (Corporate/Whole Organization or Business Unit/Division).						
A.	Organization Name					
	Business Unit/Division Name (if applicable)					
	Street Address					
	City					
	State					
	Zip Code					
	Website					
	Phone Number					
	Primary DUNS Code for this Level (nine-digit number with no dashes)					
B.	Point of Contact regarding this survey:					
	Name	Title	Phone Number	E-mail Address	State	
Comments						
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**Section 1.b Organization Information (cont.)**

Please provide the following identification codes (see definitions), as applicable, to your organization.

\*Find your organization's Commercial and Government Entity (CAGE) Codes at

[http://www.logisticsinformationservice.dla.mil/BINCS/begin\\_search.aspx](http://www.logisticsinformationservice.dla.mil/BINCS/begin_search.aspx)

\*\*Find your organization's North American Industry Classification System (NAICS) codes at <http://www.census.gov/epcd/www/naics.html>

A.	Commercial and Government Entity (CAGE) Code(s)*	<input type="text"/>	NAICS (6-digit) Code(s)**	<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>
		<input type="text"/>		<input type="text"/>

Identify the certifications and standards that your organization currently has or is working toward below:

B.	AMS (specify)	<input type="text"/>	ISO 14000	<input type="text"/>
	ANSI/ASQC Z1.4	<input type="text"/>	ISO TS16948	<input type="text"/>
	ANSI/ESD S20.20	<input type="text"/>	J-STD-001DS	<input type="text"/>
	ANSI/ISO/IEC 17025	<input type="text"/>	MIL-Q-9858	<input type="text"/>
	AS 9100	<input type="text"/>	MIL-STD-45662 A	<input type="text"/>
	Capability Maturity Model Integration (CMMI)	<input type="text"/>	NADCAP (specify)	<input type="text"/>
	DoD 5000	<input type="text"/>	NCLS (specify)	<input type="text"/>
	ISO 28000	<input type="text"/>	SAE AS9003	<input type="text"/>
	ISO 9000	<input type="text"/>	SAE AS9100	<input type="text"/>
	ISO 9001	<input type="text"/>	Other (specify)	<input type="text"/>
	ISO 10012-1	<input type="text"/>	Other (specify)	<input type="text"/>

\* AMS (Aerospace Material Specifications)      \* NADCAP (National Aerospace and Defense Contractors Accreditation Program)

\* ANSI (American National Standards Institute)      \* NCLS (National Clinical Lab Specialist)

\* ASQ (American Society for Quality)      \* SAE (SAE International, formerly the Society of Automotive Engineers)

\* ISO (International Organization for Standards)

Comments:

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<b>Section 1.c</b>	<b>Organization Information (cont.)</b>
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	From the list below, select all applicable business lines your organization currently performs. Select <b>one</b> business line as your "primary business line." Identify all other business lines your organization currently performs as "additional business lines."	
	Distribution/brokerage/reseller/retail	
	Inspection and quality control	
	Integration (product, systems integration)	
	Information technology (software, hardware, installation)	
	Maintenance/aftermarket/repair/refurbishing services	
	Manufacturing (including assembly)	
A.	Manufacturing systems development and management	
	Material finishing (machining, coating, plating, heat treating, etc.)	
	Material preparation (casting, forming, molding, forging, etc.)	
	Product and design engineering (tooling, new processes, etc.)	
	Professional services (legal, accounting, consulting, etc.)	
	Research and development	
	Raw materials provider	
	Testing/evaluation/validation	
	Provider of services not specified on this list	

	Type of Business	Yes/No	NAICS Code(s)
B.	Indicate if your organization qualifies as any of the following types of business. If "Yes," identify the NAICS code(s) under which you qualify.		
	A small business enterprise (as defined by the Small Business Administration)		
	8(a) Firm (as defined by the Small Business Administration)		
	A historically underutilized business zone (HUBZone)		
	A minority-owned business		
	A woman-owned business		
	A veteran-owned or service-disabled veteran owned business		
	Other Type of Small or Disadvantaged Business (specify)		

Comments	
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Section 2 Mergers, Acquisitions, Divestitures and Joint Ventures					
Identify your organization's five most recent <b>space-related U.S.</b> mergers, acquisitions, and divestitures from 2009 to date, if applicable. Record the merged/acquired/divested organization's name(s) and location, the year the merger/acquisition/divestiture occurred, and the primary objective of the merger/acquisition.					
	Organization Name	Type of Activity	State	Year	Primary Objective
A.	1.				
	2.				
	3.				
	4.				
	5.				
Identify your organization's five most recent <b>space-related non-U.S.</b> mergers, acquisitions, and divestitures from 2009 to date, if applicable. Record the merged/acquired/divested organization's name(s) and location, the year the merger/acquisition/divestiture occurred, and the primary objective of the merger/acquisition.					
	Organization Name	Type of Activity	Country	Year	Primary Objective
B.	1.				
	2.				
	3.				
	4.				
	5.				
Identify your organization's current <b>space-related</b> joint venture relationships, including public/private R&D partnerships. Provide the name of the organization/entity involved, indicate whether it is a U.S. or non-U.S. enterprise, and provide a description of the joint venture's purpose (e.g. patent licensing, co-production, product integration, after-market support, etc.).					
	Organization/Entity Name	U.S./Non-U.S.	Primary Objective of Relationship		
C.	1.				
	2.				
	3.				
	4.				
	5.				
Comments:					
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**Section 3.a Space-Related Product and Service Segments**

In Section 3, your organization will be asked to identify the products and services it manufactures, distributes, and/or provides. For the purpose of this survey, space-related products and services have been divided into 16 general segments, as detailed below. To ensure the accurate documentation of your organization's capabilities, products that your organization manufactures for integration into other items (that you do not sell separately to external customers) **should be identified** in the appropriate section.

Please note that your organization may be indirectly supporting space-related applications even though you may not consider your products and/or services space-related. In these circumstances, you must still identify the products and/or services that you manufacture, distribute, and/or provide in the subsequent section.

Finally, if your organization's specific product and/or service is not listed in our survey, please identify it in the 'Other' boxes provided in the most appropriate product and/or service segment.

The list below contains clickable links that can move you to a particular product and/or service segment. You may skip to the section with the products/services that pertain to your organization, but be sure to review all segments to ensure you do not omit any required information.

<a href="#">A</a>	Spacecraft & Launch Vehicles
<a href="#">B</a>	Propulsion Systems & Fuels
<a href="#">C</a>	Navigation & Control
<a href="#">D</a>	Communications Systems
<a href="#">E</a>	Space Survivability, Environmental Control/Monitoring, and Life Support
<a href="#">F</a>	Payload Instruments & Measurement Tools
<a href="#">G</a>	Ground Systems
<a href="#">H</a>	Non-Earth Based Surface Systems
<a href="#">I</a>	Power Sources & Energy Storage
<a href="#">J</a>	Electronic Equipment
<a href="#">K</a>	Computer Hardware & Robotics
<a href="#">L</a>	Software
<a href="#">M</a>	Materials, Structures, and Mechanical Systems
<a href="#">N</a>	Manufacturing Tools & Specialty Equipment
<a href="#">O</a>	Services
<a href="#">P</a>	Research & Development

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**Section 3.b Products and Services**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and research & development areas are listed in Section 3.i.

**A: Spacecraft & Launch Vehicles**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
A1		Astronomical satellites		
A2		Atmospheric balloon packages		
A3		Atmospheric probes		
A4		Communications satellites		
A5		Earth observation satellites (excluding meteorological, remote sensing, and imaging)		
A6		Landers		
A7		Manned spacecraft		
A8		Meteorological satellites		
A9		Microsatellites		
A10		Navigation satellites		
A11		Remote sensing and imaging satellites		
A12		Satellite or spacecraft buses		
A13		Search and rescue satellites		
A14		Space habitats		
A15		Surface penetrators		
A16		Surface rovers		
A17		Unmanned space exploration spacecraft		
A18		Small launch vehicles (<2,000 kg payload)		
A19		Medium launch vehicles (2,000 - 20,000 kg payload)		
A20		Heavy launch vehicles (20,000 - 50,000 kg payload)		
A21		Super-heavy launch vehicles (50,000 kg+ payload)		
A22		Other spacecraft/launch vehicles		

**B: Propulsion Systems & Fuels**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
B1		Casings		
B2		Chambers		
B3		Cold gas propulsion systems and their components		
B4		Cryo fuel transfer, storage, and equipment		
B5		Hybrid rocket motors, engines, and their components (including HTPB-based systems)		
B6		Igniters		
B7		Ion propulsion systems and their components		
B8		Liquid rocket motors, engines, and their components		
B9		Non-Toxic Monopropellant propulsion systems and their components		
B10		Nozzles		
B11		Nuclear thermal electric propulsion systems and components		
B12		Propellant tanks		
B13		Solar electric propulsion systems and their components		
B14		Solid rocket motors, engines, and their components		
B15		Thermal electric propulsion systems and their components		
B16		Thrusters not specified above		
B17		Other space-related propulsion systems		
B18		Cutting, lubricating, and hydraulic oils and greases		
B19		Fuel oils		
B20		HTPB (Hydroxyl-Terminated Polybutadiene) fuel		
B21		LO2/LCH4 (Liquid Oxygen/Liquid Methane) fuel		
B22		LOX/LH2 (Liquid Oxygen/Liquid Hydrogen) fuel		
B23		Other liquid propellants and fuels - petroleum-based (and constituent ingredients)		
B24		Solid fuels (and constituent ingredients)		
B25		Other space-related fuels		
Comments:				

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**Section 3.c Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and reserach & development areas are listed in Section 3.1.

**C: Navigation & Control**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
C1		Accelerometers		
C2		Actuators		
C3		Altitude determination and control equipment and components		
C4		Altitude determination and control sensors (including altimeters)		
C5		Earth sensors		
C6		Entry, descent, and landing systems		
C7		Gimbal systems and equipment		
C8		GPS equipment		
C9		Guidance, navigation, and control equipment and components		
C10		Gyroscopes		
C11		Hazard detection and avoidance systems		
C12		Inertial navigations systems		
C13		Light Detection and Ranging (LIDAR) systems		
C14		Radar systems		
C15		Reaction/momentum wheels		
C16		Rendezvous and docking systems		
C17		Space object capturing systems		
C18		Star trackers		
C19		Sun sensors		
C20		Telemetry equipment and components		
C21		Thrust control systems		
C22		Other space-related navigation and control equipment and components		

**D: Communications Systems**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
D1		Antennas/antenna systems		
D2		Communications security/cryptologic equipment		
D3		Delay tolerant networking		
D4		Lunar wireless network		
D5		Microwave systems		
D6		Multiplexers and demultiplexers		
D7		Optical communications systems and components (excluding fiber optic cables)		
D8		Relay equipment		
D9		Routers		
D10		Signal amplifiers		
D11		Signal converters		
D12		Signal receivers and transmitters		
D13		Transponders		
D14		Other space-related communications equipment and components		

Comments:

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**Section 3.d Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and research & development areas are listed in Section 3.i.

**E: Space Survivability, Environmental Control/Monitoring, and Life Support**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
E1		Ablative armor/plating		
E2		Atmospheric monitoring		
E3		Biocides		
E4		Bonding systems		
E5		CO2 removal and recovery systems		
E6		Cooling systems		
E7		Cryogenics/cryo-coolers		
E8		Damage protection systems		
E9		H2O removal and recovery systems		
E10		Heat shields		
E11		Heaters and radiators		
E12		High pressure oxygen supplies		
E13		Hygiene and waste removal and recovery systems		
E14		Insulation		
E15		Oxygen supply systems (including recovery and filtration equipment)		
E16		Pressure control equipment		
E17		Radiation shielding systems		
E18		Space safety/abort systems (destruct receivers, escape systems, etc.)		
E19		Space suits and related equipment		
E20		Spacecraft airlocks		
E21		Thermal monitoring		
E22		Other space survivability systems or components		

**F: Payload Instruments & Measurement Tools**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
F1		Atomic clocks		
F2		Bulk plasma		
F3		Chemical analysis instruments		
F4		Cosmic ray sensors (1 MeV)		
F5		Electric field sensors		
F6		Electrical and electrical properties testing and measurement instruments		
F7		Energetic neutral imaging systems		
F8		Environmental chambers and related measuring equipment		
F9		Filtered photometers		
F10		Gas chromatograph		
F11		Geophysical instruments		
F12		Heavy atom detectors		
F13		High energy particle sensors (30 KeV - 2 MeV)		
F14		Hyper-spectral detectors		
F15		Infrared detectors		
F16		Low energy particle sensors (100 eV)		
F17		Low noise high frame rate detectors		
F18		LWIR detectors		
F19		Magnetic field sensors and magnetometers		
F20		Meteorological instruments and apparatus		
F21		Microwave detectors		
F22		Miscellaneous laboratory equipment and supplies		
F23		Multi-spectral detectors		
F24		MWIR detectors		
F25		Near-IR visible detectors		
F26		Nuclear detectors		
F27		Physical properties testing and inspection equipment		
F28		Radiometers		
F29		Single photon detectors		
F30		Spectrometers		
F31		SWIR detectors		
F32		Synthetic aperture radar systems		
F33		Telescopes		
F34		Visible detectors		
F35		X-ray optics		
F36		Other space-related instruments or sensors		
Comments:				

BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act

**Section 3.e Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and reserach & development areas are listed in Section 3.i.

<b>G: Ground Systems</b>				
Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
G1		Ground antennas		
G2		Ground-based communications equipment (terminals, relays, etc.)		
G3		Ground tracking, telemetry, and control equipment		
G4		Simulation and/or training machines		
G5		Other space-related ground systems		
<b>H: Non-Earth Based Surface Systems</b>				
Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
H1		Dust management systems (mitigation and removal)		
H2		Dust tolerant connectors		
H3		Lunar excavation		
H4		Mineral mapping systems		
H5		Oxygen and water extraction from regolith		
H6		Regolith excavation and handling		
H7		Surface habitation systems and equipment		
H8		Volatile (H, C, N, He) extraction from regolith		
H9		Other non-Earth based surface systems and equipment		
<b>I: Power Sources &amp; Energy Storage</b>				
Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
I1		Batteries (lithium ion, nickel hydrogen, nickel cadmium, silver zinc, etc.)		
I2		Electrical converters		
I3		Fuel cell power units and components		
I4		Generators		
I5		Other energy storage devices		
I6		Nuclear fission power systems		
I7		Radioisotope thermoelectric generators		
I8		Radioactive materials for use in power generation		
I9		Solar electrical power systems, equipment, and components		
I10		Transformers		
I11		Wires and cables (electrical)		
I12		Other space-related power sources/energy storage systems		
Comments:				

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 3.f Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and research & development areas are listed in Section 3.i.

**J: Electronic Equipment**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
J1		Application-specific integrated circuits (ASICs)		
J2		Attenuators		
J3		Capacitors		
J4		Charge couple devices		
J5		Circuit boards		
J6		Circuit breakers		
J7		Coils and transformers		
J8		Connectors		
J9		Diodes		
J10		Electrical insulators		
J11		Electron tubes		
J12		Fiber optics (conductors, cables, switches, assemblies, etc.)		
J13		Field programmable gate arrays		
J14		Filters and networks		
J15		Fuses, arrestors, absorbers, and protectors		
J16		Inductors		
J17		Integrated circuits/semiconductors (excluding ASICs)		
J18		Large format focal plane arrays		
J19		Lasers and laser systems		
J20		Lugs, terminals, and terminal strips		
J21		Memory		
J22		Modulators/demodulators		
J23		Non-volatile memory		
J24		Optoelectronic devices and associated equipment		
J25		Oscillators and piezoelectric crystals		
J26		Radiation hardened/tolerant electronics		
J27		Relays and solenoids		
J28		Resistors		
J29		Signal/function generators (radio frequency, microwave, etc.)		
J30		Switches (coaxial, radio frequency, video, etc.)		
J31		Synchros and resolvers		
J32		Transistors		
J33		Traveling wave tubes, amplifiers		
J34		Other space-related electronic equipment		

**K: Computer Hardware & Robotics**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
K1		Computers and data processing equipment		
K2		Data handling and input/output storage devices		
K3		Data terminal equipment		
K4		Displays/monitors		
K5		Fault tolerant computing		
K6		High dexterity manipulation systems		
K7		High performance super computers		
K8		Robotics and autonomous systems		
K9		Other space-related computer hardware and robotic systems		

**L: Software**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
L1		Communications software		
L2		Data mining and knowledge management software		
L3		Environmental control and monitoring software		
L4		Ground system software		
L5		Mission automation and execution software		



L6	Mission planning software				
L7	Modeling, analysis, and visualization software				
L8	Navigation and control software				
L9	Payload instrument software				
L10	Propulsion system operating software				
L11	Simulation software				
L12	Other space-related software				
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

**Section 3.g Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and research & development areas are listed in Section 3.i.

M: Materials, Structures, and Mechanical Systems					
Product Area	Manufacture/Distribute?	Product Description(s)	Sole Manufacturer/Distributor?	Sole Manufactured/Distributed Product(s)	
M1	Bars and rods (specify materials to the right)				
M2	Plates, sheets, etc. (specify materials to the right)				
M3	Pipes and tubes (specify materials to the right)				
M4	Precious metals (specify materials to the right)				
M5	Rare Earth Elements (specify materials to the right)				
M6	Carbon fiber materials				
M7	Other fiber based materials (including rayon, nylon, etc.)				
M8	Composite materials				
M9	Dust resistant coatings				
M10	Optical coatings				
M11	Protective coatings				
M12	Thermal coatings				
M13	Other types of coatings				
M14	Adhesives				
M15	Chemicals				
M16	Gases and pressurants (N, He, etc.)				
M17	Inks				
M18	Resins				
M19	Sealants				
M20	Solvents				
M21	Substrates				
M22	Struts				
M23	Fairings and skirts				
M24	Spacecraft panels				
M25	Cover glass				
M26	Spacecraft windows or window materials				
M27	Beryllium-based structures				
M28	Carbon fiber-based structures				
M29	Composite-based structures				
M30	Other lightweight material-based structures				
M31	Glass fabricated structures not specified elsewhere (glass laminates, nanostructures, etc.)				
M32	Plastic fabricated structures not specified elsewhere (plastic moldings, cellular materials, etc.)				
M33	Rubber fabricated structures not specified elsewhere (moldings, foam, etc.)				
M34	Structures created through additive manufacturing processes				
M35	Bearings				
M36	Castings				
M37	Compressors and vacuum pumps				
M38	Couplings, connectors, and fittings				
M39	Dampers				
M40	Fasteners (screws, nuts, bolts, clips, brackets, rivets, etc.)				
M41	Forgings				
M42	Gaskets (o-rings, washers, etc.)				
M43	Gears and gear boxes				
M44	Hydraulics, valves, actuators, pumps				
M45	Landing gear or systems				
M46	Magnets				
M47	Mirrors				
M48	Precision machined parts				
M49	Pyrotechnics, cartridge and propellant actuated devices				
M50	Semi-finished machined parts				
M51	Specialty storage devices or containers				
M52	Springs and wire forms				
M53	Wire and cables (non-electrical)				
M54	Other space-related materials, structures, or mechanical systems				
Comments:					

BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act

**Section 3.h Products and Services (cont.)**

Identify any of the products and/or services your organization manufactures or distributes below. For each product/service area selected, provide a brief description of the specific items your organization manufactures or distributes. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global manufacturer/distributor of any specific items in each product/service area. If so, describe them in the appropriate box.

Note: Services and reserach & development areas are listed in Section 3.i.

**N: Manufacturing Tools & Specialty Equipment**

Product Area	Manufacture/ Distribute?	Product Description(s)	Sole Manufacturer/ Distributor?	Sole Manufactured/Distributed Product(s)
N1		Bending and forming machines		
N2		Boring, broaching, drilling, and tapping machines		
N3		Chemical production machinery		
N4		Clean work stations, controlled environments and related equipment		
N5		Computer Numerical Control (CNC) systems		
N6		Electrical and ultrasonic erosion machines		
N7		Filament winding machines		
N8		Five-axis machine tools		
N9		Forging machinery		
N10		Foundry machinery		
N11		Gear cutting and finishing machines		
N12		Grinding machines		
N13		Hydraulic, pneumatic, and mechanical presses		
N14		Lathes		
N15		Lubrication and fuel dispensing equipment		
N16		Metal heat treating and non-thermal treating equipment		
N17		Milling machines		
N18		Rocket maintenance, repair, and checkout specialized equipment		
N19		Rolling and drawing machines		
N20		Semiconductor, microcircuit, and printed circuitboard manufacturing machinery		
N21		Space vehicle maintenance, repair, and checkout specialized equipment		
N22		Test stands		
N23		Thermal vacuum chambers		
N24		Tooling kits and equipment		
N25		Welding, soldering, riveting and brazing equipment		
N26		Wind tunnels		
N27		Wire and ribbon forming machines		
N28		Other machinery utilized for space-related manufacturing/servicing		
Comments:				

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 3.i Products and Services (cont.)**

Identify any of the services your organization provides below. For each service or R&D area selected, provide a brief description of the specific items your organization provides. To the best of your knowledge, indicate whether your organization is the sole U.S.-based or global provider of any specific items in each product/service area. If so, describe them in the appropriate box.

O: Services				
Service Area	Provide Service?	Service Description(s)	Sole Provider?	Sole Service(s) Provided
O1		Analysis, fusion, or visualization of data derived from space (including electro-optical imagery, data from satellite sensors, etc.)		
O2		Calibration of space-related equipment		
O3		Coating services		
O4		Commercial satellite operation		
O5		Communications and broadcast services		
O6		Data storage and handling services		
O7		Encryption and secure communication services		
O8		Friction stir welding and spun form domes		
O9		Ground support and operations services		
O10		Heat treatment services		
O11		Information and software assurance (including verification and validation)		
O12		Launch support services		
O13		Logistics services		
O14		Machining services (includes cutting, boring, grinding, etc.)		
O15		Maintenance, repair, and rebuilding services		
O16		Materials testing		
O17		Plating services		
O18		Priming and painting services		
O19		Product assurance, quality control services		
O20		Professional services		
O21		Program management and support services		
O22		Program review/development services		
O23		Provision of data derived from space (including electro-optical imagery, remote sensing, etc.)		
O24		Safety and mission assurance services		
O25		Software and algorithm development services		
O26		Space crew operations and training		
O27		Space launch services		
O28		Space medicine		
O29		Space vehicle handling and servicing		
O30		Space-related design and engineering services		
O31		Specification development services		
O32		Systems engineering		
O33		Testing or inspection of space-related equipment (includes inspection, simulation, vibration testing, acoustics testing, etc.)		
O34		Other space-related services		
P: Research & Development				
R&D Focus	Provide R&D?	R&D Description		
P1		Atmospheric/suborbital research		
P2		Biomedical research		
P3		Communications and navigation		
P4		Entry, descent, and landing systems		
P5		Ground and launch systems processing		
P6		Human exploration destination systems		
P7		In-space propulsion		
P8		Launch propulsion systems		
P9		Materials		
P10		Mechanical Systems		

P11	Modeling, simulation, information technology, and processing			
P12	Nanotechnology			
P13	Payloads, science instruments, and sensor systems			
P14	Propellants and fuels			
P15	Robotics and autonomous systems			
P16	Space power and energy storage			
P17	Space survivability, life support, and habitation systems			
P18	Structures			
P19	Theoretical and scientific R&D			
P20	Thermal management systems			
P21	Other space-related research & development area			
Comments:				
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>				

**Section 4 Participation in U.S. Government Space Programs**

From the list provided below, identify all the U.S. Government, space-related programs your organization has directly and/or indirectly participated in since 2009. Participation (as a prime contractor, sub-contractor, or other type of support) includes the manufacture/integration of products, distribution of products, performance of manufacturing processes on products, provision of services, the provision of research & development, etc. Next, list the top five product and/or service codes your organization provides for each program you participate in. The product/service drop-down list is based on your responses to Section 3. If your product or service does not appear in the drop-down, ensure that you have identified your organization as a manufacturer, distributor, and/or provider of that product or service in Section 3.

If you participate in a space-related program that is not listed below, you may enter it in the 'Other' section at the bottom. In these cases, identify the relevant agency in the 'U.S. Government Agency' column and then identify the program name in the 'Space Program Name' column.

Not Applicable?

If your organization is not sure of its participation in any U.S. Government space-related programs and has reviewed the list below as confirmation, select "Not Applicable" from the box to the right and skip this section.

Note: For your convenience, you may utilize the built-in filters to isolate particular U.S. Government agencies or programs from the list (press the down facing arrow in the top right corner of the relevant column below).

	U.S. Government Agency	Space Program Name	Participation	Product/Service List Code Supporting Space Programs				
				1	2	3	4	5
1	Air Force	ADAP - Advanced Digital Antenna Production						
2	Air Force	AEHF - Advanced Extremely High Frequency						
3	Air Force	AEP - Architecture Evolution program						
4	Air Force	AFCPPT - Air Force Command Post Terminals						
5	Air Force	AFSCN ESD - Air Force Satellite Control Network Electronic Schedule Dissemination 2.7						
6	Air Force	AFSCN ESD - Air Force Satellite Control Network Electronic Schedule Dissemination 3.0						
7	Air Force	AFSCN RBC - Air Force Satellite Control Network Remote Tracking Station Block Change (RBC)						
8	Air Force	AFSSS - Air Force Space Surveillance System						
9	Air Force	AFWET - Air Force Wideband Enterprise Terminals						
10	Air Force	AITG - Airborne Integrated Terminals Group						
11	Air Force	ARS - Archival Recorder Systems						
12	Air Force	ARTS - Automated Remote Tracking Station						
13	Air Force	BMEWS - Ballistic Missile Early Warning System						
14	Air Force	CCS - Counter Communications System						
15	Air Force	CCS-C - Command & Control System-Consolidated						
16	Air Force	CCS-C Block 1 - Command and Control System						
17	Air Force	DAGR - Defense Advanced GPS Receiver						
18	Air Force	DMSP - Defense Meteorological Satellite Program						
19	Air Force	DSCS - Defense Satellite Communications System						
20	Air Force	DSP - Defense Support Program						
21	Air Force	DWSS - Defense Weather Satellite System						
22	Air Force	EELV - Evolved Expendable Launch Vehicles						
23	Air Force	EELV Delta IV - Evolved Expendable Launch Vehicles						
24	Air Force	Eglin Radar						
25	Air Force	Eglin Radar SLEP						
26	Air Force	EPS - Enhanced Polar System						
27	Air Force	FAB-T - Family of Advanced Beyond Line-of-Sight Terminals (Inc 1)						
28	Air Force	GBS - Global Broadcast Service						
29	Air Force	GBS DECC Transition - Global Satellite Broadcast System Defense Enterprise Computing Center Transition						
30	Air Force	GEODSS - Ground-Based Electro Optical Deep Space Surveillance						
31	Air Force	Globus II						
32	Air Force	GMT - Ground Multiband Terminals						
33	Air Force	GPS Block IIF						
34	Air Force	GPS Block IIR						
35	Air Force	GPS IIA						
36	Air Force	GPS IIIA						
37	Air Force	HUSIR - Haystack Ultra-Wideband Satellite Imaging Radar						
38	Air Force	JETSS - Joint Execution and Training System for Space						
39	Air Force	JMS - Joint Space Operations Center (JSpOC) Mission System (JMS)						
40	Air Force	LADO - Launch, Early Orbit, Anomaly, & Disposal Operations						
41	Air Force	LIONS - Logistics Information Operations Systems						

42	Air Force	LTRS - Launch Test Range System							
43	Air Force	MAGR-2K - Miniaturized Airborne GPS Receiver 2000							
44	Air Force	MARK IVB - Meteorological Data Station							
45	Air Force	MGUE-GPS User Equipment: Modernized UE							
46	Air Force	Milstar Satellites							
47	Air Force	Milstar/DMU II Terminals							
48	Air Force	Miltar SMCS Satellite Mission Control Subsystem							
49	Air Force	Minotaur-SMC/SDTW Launch Vehicle							
50	Air Force	MMP-Minuteman MEECN Program							
51	Air Force	MMSOC-GSA - Multi-Mission Space Operations Center Ground Support Architecture							
52	Air Force	MOSS - Moron Optical Space Surveillance							
53	Air Force	NAVSTAR GPS - Navigational Signal Timing and Ranging Global Positioning System							
54	Air Force	NAVSTAR MUE							
55	Air Force	NDS - Nuclear Detonation Detection System							
56	Air Force	NPOESS - National Polar-orbiting Operational Environmental Satellite System							
57	Air Force	OAS - Orbital Analysis Systems							
58	Air Force	OCS - GPS Operational Control Segment							
59	Air Force	OCX - Next Generation Operational Control System							
60	Air Force	OSR - Operational Switch Replacement							
61	Air Force	PARCS - Perimeter Acquisition Radar Attack Characterization System							
62	Air Force	PAWS-PAVE Phased Array Warning System							
63	Air Force	RAIDRS - Rapid Attack Identification Detection Reporting System							
64	Air Force	RSLP - Rocket Systems Launch Program							
65	Air Force	RSS - Receiving Set Satellite							
66	Air Force	RSTN - Radio Solar Telescope Network							
67	Air Force	S2E2 - SBIRS Survivable Endurable Evolution							
68	Air Force	SBIRS - Space Based Infrared Systems							
69	Air Force	SBIRS Fixed Sites							
70	Air Force	SBIRS High-Space Based Infrared System							
71	Air Force	SBIRS Mobile Vehicles							
72	Air Force	SBIRS Space Segment							
73	Air Force	SBSS Blk10 - Space Based Space Surveillance Block 10							
74	Air Force	SCAMP - Single Channel Anti-Jam Man Portable Terminal							
75	Air Force	SMART-T - Secure mobile Anti-Jam Reliable Tactical Terminal							
76	Air Force	SOON - Solar Observing Optical Network							
77	Air Force	Space Fence							
78	Air Force	SSAEM-Space Situational Awareness Environmental Monitoring							
79	Air Force	TacSat-3							
80	Air Force	VTS-A - Vandenberg Tracking Station-A							
81	Air Force	WGS Block I - Wideband Global SATCOM							
82	Air Force	WGS Block II - Wideband Global SATCOM							
83	Air Force	WGS Block III - Wideband Global SATCOM							
84	Army	JTAGS - Joint Tactical Ground Station							
85	Missile Defense Agency	STSS Demonstrators - Space Tracking and Surveillance System							
86	Missile Defense Agency	STSS-ATRR - Space Tracking and Surveillance System Advanced Technology Risk Reduction							
87	NASA	21st Century Ground Systems							
88	NASA	ACRIMSAT - Active Cavity Radiometer Irradiance Monitor Satellite							
89	NASA	AIM							
90	NASA	AMMOS							
91	NASA	Aqua							
92	NASA	Aquarius							
93	NASA	ARSG - Advanced Stirling Radioisotope Generator							
94	NASA	ASCENDS - Active Sensing of CO2 Emissions over Nights, Days, and Seasons							
95	NASA	ASPERA-3							
96	NASA	Astro-H (SXS)							
97	NASA	Astrophysics Research Program							
98	NASA	Aura							
99	NASA	Cassini							
100	NASA	Cassini-Huygens							

101	NASA	CCDev - Commercial Crew Development							
102	NASA	Chandra X-ray Observatory							
103	NASA	CINDI							
104	NASA	CLARREO							
105	NASA	CloudSat							
106	NASA	Commercial Crew and Cargo Program							
107	NASA	Constellation Program							
108	NASA	Dawn							
109	NASA	DESDynI							
110	NASA	Earth Science Multi-Mission							
111	NASA	Earth Science Technology							
112	NASA	EO-1 - Earth Observing-1							
113	NASA	EPOXI (Was Deep Impact)							
114	NASA	Fermi Gamma-ray Space Telescope							
115	NASA	GALEX							
116	NASA	GEMS - Gravity and Extreme Magnetism							
117	NASA	Genesis							
118	NASA	Glory Mission							
119	NASA	GPM - Global Precipitation Measurement							
120	NASA	GRACE							
121	NASA	GRACE FO							
122	NASA	GRAIL							
123	NASA	Heliophysics Research							
124	NASA	Herschel Space Observatory							
125	NASA	Hinode							
126	NASA	Hubble Space Telescope							
127	NASA	IBEX							
128	NASA	ICESat-II - Ice, Cloud, and land Elevation Satellite							
129	NASA	International Space Station Program							
130	NASA	IRIS - Interface Region Imaging Spectrograph							
131	NASA	Jason-1							
132	NASA	Jason-2							
133	NASA	Jason-3							
134	NASA	Juno							
135	NASA	JWST - James Webb Space Telescope							
136	NASA	Kepler							
137	NASA	LADEE							
138	NASA	Launch Services Program							
139	NASA	LBTI - Large Binocular Telescope Interferometer							
140	NASA	LCROSS - Lunar Crater Observation and Sensing Satellite							
141	NASA	LDCM - Landsat Data Continuity Mission							
142	NASA	LRO - Lunar Reconnaissance Orbiter							
143	NASA	Mars 2018							
144	NASA	Mars Exploration - 2016							
145	NASA	Mars Global Surveyor							
146	NASA	Mars Reconnaissance Orbiter							
147	NASA	MAVEN							
148	NASA	MER - Mars Exploration Rover							
149	NASA	MESSENGER							
150	NASA	MMS - Magnetospheric Multiscale Mission							
151	NASA	MSL - Mars Science Laboratory							
152	NASA	Multit-purpose Crew Vehicle							
153	NASA	MUSES-C - Hayabusa-U.S.							
154	NASA	New Horizons							
155	NASA	New Millennium							
156	NASA	NPP - NPOESS Preparatory Project							
157	NASA	NuSTAR							
158	NASA	NuSTAR - Nuclear Spectroscopic Telescope Array							
159	NASA	OCO							
160	NASA	OCO-2							
161	NASA	Odyssey							
162	NASA	OSTM							
163	NASA	PACE - Pre-Aerosol, Clouds, and Ecosystem Mission							
164	NASA	Phoenix							





**Section 5.a Critical Suppliers**

For each Product and Service segment (A-P), identify your organization's critical suppliers. Only identify suppliers that support products/services mentioned earlier in the survey (in Section 3). Please list as many suppliers in each section as possible. **Each critical supplier should be indicated in the Product and Service segment for the product/service they supply to your organization** - not the segment you utilize their product/service for. For example: a supplier who provides semiconductors should be identified in segment J: Electronic Equipment, not the segment that the semiconductor integrated into.

Once you have located the appropriate segment for a supplier, identify the supplier's name, the product/service area they provide (from the drop-down menu), and a short description of the specific product/service. Next, identify the product/service area that each item supplied is utilized for (this should be one of the products/services your organization manufactures or provides). In addition, identify the city, state, and country of the supplier and whether this supplier is a single and/or sole source of the product/service in question (see definitions). Finally, identify any U.S. Government space-related programs that each supplier and product/service is used to support by your organization, if applicable.

If a supplier provides more than one product/service area, complete the supplier information on two separate rows and alter the product/service area accordingly.

For the purposes of this survey, a supplier may be, but does not have to be, considered critical if it meets any of the following criteria:

- Is used to support multiple U.S. Government programs;
- Is a sole and/or single source supplier;
- Contributes a significant portion to the end product's value;
- Provides a product/service that has a long lead-time;
- Provides an important obsolete or out of production part; and/or
- Meets any other criteria for criticality that your organization utilizes.

<b>A: Spacecraft &amp; Launch Vehicles</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
1.													
2.													
3.													
4.													
5.													
6.													
7.													
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<b>B: Propulsion Systems &amp; Fuels</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
1.													
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6.													
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9.													
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<b>C: Navigation &amp; Control</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
1.													
2.													
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<b>D: Communications Systems</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
1.													
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Comments:

BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act

**Section 5.b Critical Suppliers (cont.)**

For each Product and Service segment (A-P), identify your organization's critical suppliers. Only identify suppliers that support products/services mentioned earlier in the survey (in Section 3). Please list as many suppliers in each section as possible. **Each critical supplier should be indicated in the Product and Service segment for the product/service they supply to your organization** - not the segment you utilize their product/service for. For example: a supplier who provides semiconductors should be identified in segment J: Electronic Equipment, not the segment that the semiconductor integrated into.

Once you have located the appropriate segment for a supplier, identify the supplier's name, the product/service area they provide (from the drop-down menu), and a short description of the specific product/service. Next, identify the product/service area that each item supplied is utilized for (this should be one of the products/services your organization manufactures or provides). In addition, identify the city, state, and country of the supplier and whether this supplier is a single and/or sole source of the product/service in question (see definitions). Finally, identify any U.S. Government space-related programs that each supplier and product/service is used to support by your organization, if applicable.

If a supplier provides more than one product/service area, complete the supplier information on two separate rows and alter the product/service area accordingly.

For the purposes of this survey, a supplier may be, but does not have to be, considered critical if it meets any of the following criteria:

- Is used to support multiple U.S. Government programs;
- Is a sole and/or single source supplier;
- Contributes a significant portion to the end product's value;
- Provides a product/service that has a long lead-time;
- Provides an important obsolete or out of production part; and/or
- Meets any other criteria for criticality that your organization utilizes.

E: Space Survivability, Environmental Control/Monitoring, and Life Support								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
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F: Payload Instruments & Measurement Tools								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
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G: Ground Systems								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
2.												
3.												
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5.												
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7.												
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H: Non-Earth Based Surface Systems								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
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Comments:

**Section 5.c Critical Suppliers (cont.)**

For each Product and Service segment (A-P), identify your organization's critical suppliers. Only identify suppliers that support products/services mentioned earlier in the survey (in Section 3). Please list as many suppliers in each section as possible. **Each critical supplier should be indicated in the Product and Service segment for the product/service they supply to your organization** - not the segment you utilize their product/service for. For example: a supplier who provides semiconductors should be identified in segment J: Electronic Equipment, not the segment that the semiconductor integrated into.

Once you have located the appropriate segment for a supplier, identify the supplier's name, the product/service area they provide (from the drop-down menu), and a short description of the specific product/service. Next, identify the product/service area that each item supplied is utilized for (this should be one of the products/services your organization manufactures or provides). In addition, identify the city, state, and country of the supplier and whether this supplier is a single and/or sole source of the product/service in question (see definitions). Finally, identify any U.S. Government space-related programs that each supplier and product/service is used to support by your organization, if applicable.

If a supplier provides more than one product/service area, complete the supplier information on two separate rows and alter the product/service area accordingly.

For the purposes of this survey, a supplier may be, but does not have to be, considered critical if it meets any of the following criteria:

- Is used to support multiple U.S. Government programs;
- Is a sole and/or single source supplier;
- Contributes a significant portion to the end product's value;
- Provides a product/service that has a long lead-time;
- Provides an important obsolete or out of production part; and/or
- Meets any other criteria for criticality that your organization utilizes.

<b>I: Power Sources &amp; Energy Storage</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
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2.													
3.													
4.													
5.													
6.													
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<b>J: Electronic Equipment</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
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7.													
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<b>K: Computer Hardware &amp; Robotics</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
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2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

  

<b>L: Software</b>													
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	U.S. Government Program Supported					
								1	2	3	4	5	
1.													
2.													
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Comments: \_\_\_\_\_

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 5.d Critical Suppliers (cont.)**

For each Product and Service segment (A-P), identify your organization's critical suppliers. Only identify suppliers that support products/services mentioned earlier in the survey (in Section 3). Please list as many suppliers in each section as possible. **Each critical supplier should be indicated in the Product and Service segment for the product/service they supply to your organization** - not the segment you utilize their product/service for. For example: a supplier who provides semiconductors should be identified in segment J: Electronic Equipment, not the segment that the semiconductor integrated into.

Once you have located the appropriate segment for a supplier, identify the supplier's name, the product/service area they provide (from the drop-down menu), and a short description of the specific product/service. Next, identify the product/service area that each item supplied is utilized for (this should be one of the products/services your organization manufactures or provides). In addition, identify the city, state, and country of the supplier and whether this supplier is a single and/or sole source of the product/service in question (see definitions). Finally, identify any U.S. Government space-related programs that each supplier and product/service is used to support by your organization, if applicable.

If a supplier provides more than one product/service area, complete the supplier information on two separate rows and alter the product/service area accordingly.

For the purposes of this survey, a supplier may be, but does not have to be, considered critical if it meets any of the following criteria:

- Is used to support multiple U.S. Government programs;
- Is a sole and/or single source supplier;
- Contributes a significant portion to the end product's value;
- Provides a product/service that has a long lead-time;
- Provides an important obsolete or out of production part; and/or
- Meets any other criteria for criticality that your organization utilizes.

M: Materials, Structures, and Mechanical Systems								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

N: Manufacturing Tools & Specialty Equipment								U.S. Government Program Supported				
Supplier Name	Product Area Provided by Supplier	Product Description	Product Area that the Supplied Product is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

O: Services								U.S. Government Program Supported				
Supplier Name	Service Area Provided by Supplier	Product Description	Product Area that the Supplied Service is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												

P: Research & Development								U.S. Government Program Supported				
Supplier Name	R&D Area Provided by Supplier	Product Description	Product Area that the R&D is Utilized For	Supplier City	Supplier State (if applicable)	Supplier Country	Single/Sole Supplier?	1	2	3	4	5
1.												
2.												
3.												
4.												
5.												
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8.												
9.												
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Comments: \_\_\_\_\_

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 6**

**Top Customers**

Identify your organization's top 20 U.S. and non-U.S. **direct space-related customers** by sales for the 2009-2012 period. A direct customer is the immediate entity you are selling your product/service to. Indicate the type of customer, their location, and whether or not you consider the customer a competitor to your organization. Finally, identify the top five products and/or services your organization provided to each customer.

As a reminder, for the purpose of this survey, space-related is defined as any product, service, or object that is a) used in or launched into space; b) used to directly or indirectly support space applications from Earth; and/or c) used to manufacture any product that is used in space or directly supports space applications. The product, service, or object does not have to be specifically intended to support space applications.

If your organization does not have any space-related customers, you may select "Not Applicable" from the box to the right and skip this section.

**Top U.S.-Based Customers**

	Customer Name	Type of Customer	Customer City	Customer State	Competitor?	Product/Service Codes Provided to Customer				
						1	2	3	4	5
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

**Top Non-U.S. Based Customers**

	Customer Name	Type of Customer	Customer City	Customer Country	Competitor?	Product/Service Codes Provided to Customer				
						1	2	3	4	5
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

Comments:

BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act

**Section 7**

**Top Competitors**

Identify your organization's leading U.S. and non-U.S. competitors for **space-related products and/or services**. Indicate their name, the type of competitor, location, and corresponding Product and Service Segment relating to the competition. Note: U.S. Government agencies and centers may be considered competitors.

If your organization does not have competitors for space-related products and/or services, you may select "Not Applicable" from the box to the right and skip this section.

U.S. Competitors				Product/Service Segment		
Competitor Name	Type of Competitor	State	1	2	3	
1.						
2.						
3.						
4.						
5.						

  

Non-U.S. Competitors				Product/Service Segment		
Competitor Name	Type of Competitor	Country	1	2	3	
1.						
2.						
3.						
4.						
5.						

B. Has your organization been adversely impacted by competition from Federally Funded Research and Development Centers (FFRDCs) and/or U.S. Government agencies? Explain below. If this question is not applicable to your organization, select "Not Applicable" from the box to the right.

Comments:

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 8.a****Manufacturing Operations**

Section 8 asks questions related to your organization's manufacturing operations.

If your organization manufactures/assembles/integrates one or more of the products in Section 3, you must complete this section.

Based on your responses to Section 3, if your organization is **only** a distributor of products or a service/R&D provider, select "Not Applicable" in the box to the right. You may then skip this section and proceed to Section 9.

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**



Section 8.b		Manufacturing Operations	
A.	Estimate your organization's current "Make/Buy" ratio. In other words, estimate the percentage of dollars spent for work done by your organization's employees ("Make" percentage) vs. the dollars spent for work done by outside contractors ("Buy" percentage).	Make %	
	Note: "Make" includes internal organization purchasing.	Buy %	
B.	Does your organization maintain an inventory for <b>space-related</b> components, manufacturing materials, and/or finished products? (See definitions)		
	On average, how many months supply of <b>space-related</b> finished, manufactured products are normally maintained in inventory?		
	On average, how many months supply of <b>space-related</b> components and manufacturing materials products are normally maintained in inventory?		
C.	What is the average amount of time it takes to approve or officially certify a new supplier for <b>space-related</b> applications, assuming one was available?		
D.	Does your organization use any of the elements identified below in its <b>space-related</b> production process or as a component of final products? Identify each.		
	Aluminum		Praseodymium
	Antimony		Rare Earth Phosphors
	Carbon graphite		Rare Earth Polishing Agent
	Copper		Samarium
	Dysprosium		Samarium-Cobalt Magnets
	Europium		Tantalum
	Gadolinium		Terbium
	Gold		Tin
	Mercury		Titanium
	Neodymium		Tungsten
	Neodymium-Iron-Boron Magnets		Yttrium
	Other Rare Earth Oxide or Chemical (specify)		Other Rare Earth Metal or Alloy (specify)
	Identify whether your organization's <b>space-related</b> operations have been adversely impacted by any of the following factors related to the elements identified above. Explain your response, identifying the specific elements concerned.		
E.	Factor	Yes/No	Explain
	Increase in U.S. demand		
	Increase in non-U.S. demand		
	Decrease in U.S. availability		
	Decrease in non-U.S. availability		
	Sharp changes in market price		
	Other (specify)		
F.	Estimate the capacity utilization rate (see definitions) for your organization from 2009-2012.	2009	
		2010	
		2011	
		2012	
	Estimate the minimum level of capacity utilization necessary to keep your production costs from changing disproportionately to order volume. Explain your response below.		
Comments:			

BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act

**Section 9****General Business Operations**

A.	Does your organization maintain an internal preferred sub-contractor/supplier program? If "Yes," what percentage of suppliers have preferred status?		Preferred Program?	
			Percentage:	
B.	From the drop-downs below, select the predominant type of contract your organization enters into with suppliers and customers for <b>space-related</b> products and/or services (See Definitions for an explanation of each type of contract).			
	Suppliers:		Customers:	
C.	From the drop-down below, identify the top three support operations that present challenges when utilizing outside/third-party suppliers for space-related operations. Explain each. Challenges may include lack of qualified vendors, pricing, quality issues, environmental regulations, etc.			
	Type of Business Support Operation		Explanation of Challenges	
D.	From 2009-2012, did your organization encounter counterfeits for any of the following types of products? (see Definitions) Select all that apply.			
	Electronics (integrated circuits, circuit boards, discrete electronic components, etc.)		Software	
	Fasteners		Systems/sub-systems (navigation, communications, propulsion, etc.)	
	Materials (metals, alloys, elements etc.)		Testing procedures and/or documentation	
	Mechanical systems (hydraulics, gear boxes, etc.)		Other types of counterfeits (specify)	
	Power sources or energy storage equipment		Other types of counterfeits (specify)	
E.	Does your organization have a formal, written protocol for handling, documenting, and reporting incidents of counterfeits?			
Comments:				
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>				

Section 10 Relationships with the U.S. Government			
To the best of your knowledge, identify any U.S. Government agencies your organization directly and/or indirectly supports from the list below. For each, indicate whether this support is space-related, non-space related, or both.			
Agency		Agency	
Central Intelligence Agency (CIA)		National Geospatial-Intelligence Agency (NGA)	
Defense Advanced Research Projects Agency (DARPA)		National Oceanic and Atmospheric Administration (NOAA)	
Director, Defense Research and Engineering (DDR&E)		National Aeronautics and Space Administration (NASA)	
Department of Energy (including the National Nuclear Security Administration)		National Reconnaissance Office (NRO)	
Federal Aviation Administration (FAA)		National Security Agency (NSA)	
Missile Defense Agency (MDA)		U.S. Air Force (including the Space and Missile Systems Center and AFRL)	
Other (specify)		U.S. Army (including the Space and Missile Defense Command)	
Other (specify)		U.S. Navy (including the Office of Naval Research and Naval Research Laboratory)	
Other (specify)		Other Department of Defense Organizations	
B.	Does your organization consider itself dependent upon <b>current U.S. Government space-related programs</b> for its continued viability? Explain your response below.		
C.	Estimate the percentage range of compatibility of your current U.S. Government space-related product/service lines with current commercial space applications, if applicable.		
D.	Estimate the percentage range of compatibility of all your space-related product/service lines (U.S. Government and commercial) to your non-space related product/service lines, if applicable.		
E.	Is your organization <b>capable of</b> providing specialty, low-volume or one-time, space-related products/services to the U.S. Government at a reasonable cost, while maintaining your current business operations?		
	Is your organization <b>willing to</b> provide specialty, low-volume or one-time, space-related products/services to the U.S. Government at a reasonable cost, while maintaining your current business operations?		
	Are there steps that the U.S. Government can take to make the provision of specialty, low-volume or one-time, space-related products and services more attractive to your organization? Explain your response below.		
F.	From 2009-2012, has your company received a rated order (DO or DX) from a U.S. Government agency? A rated order means a prime contract, a subcontract, or a purchase order in support of an approved program issued in accordance with the provisions of the Defense Priorities and Allocation System (DPAS) regulations (15 CFR part 700).		
Comments:			
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>			

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<b>Section 11.a</b>		<b>Demand and Production</b>			
A.	How vulnerable is your organization to variability in <b>U.S. Government demand</b> , on a scale from 1 to 5 (1 = no vulnerability; 5 = very high vulnerability). Explain your reasoning below. If this is not applicable to your organization, select 'Not Applicable' from the drop-down.				
B.	How vulnerable is your organization to variability in <b>commercial demand</b> , on a scale from 1 to 5 (1 = no vulnerability; 5 = very high vulnerability). Explain your response below. If this is not applicable to your organization, select 'Not Applicable' from the drop-down.				
C.	From the list below, select the potential impacts that a sudden decrease in direct and/or indirect U.S. Government <b>space-related</b> demand would have on your organization:				
	Decreased capital expenditures		Pursuit of new product/service lines		
	Decreased research & development expenditures		Pursuit of other non-U.S. customers		
	Disproportionate reduction in sales revenue		Pursuit of other U.S. customers		
	Elimination of all participation in U.S. Government contracts		Reduced participation in U.S. Government contracts		
	Increased product/service costs		Reduction or elimination of particular product lines		
	Loss of organization viability or solvency		Sale of key production equipment		
	Loss of personnel with key skills		Other (specify)		
	Other (specify)		Other (specify)		
	Comments:				
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

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<b>Section 11.b</b>		<b>Demand and Production (cont.)</b>			
A.	Has variability of demand from U.S. Government organizations for <b>space-related</b> products/services <b>adversely impacted</b> your organization's desire to continue to directly or indirectly serve these customers? Explain your response below.				
B.	From 2009-2012, indicate if your organization experienced an increase, decrease, or no change in <b>space-related</b> customer demand for the following business lines you selected in Section 1.c, if applicable. Explain your response below.				
			Your Response From Section 1.c	Change in Customer Demand	
	Distribution/brokerage/reseller/retail	0			
	Inspection and quality control	0			
	Integration (product, systems integration)	0			
	Information technology (software, hardware, installation)	0			
	Maintenance/aftermarket/repair/refurbishing services	0			
	Manufacturing (including assembly)	0			
	Manufacturing systems development and management	0			
	Material finishing (machining, coating, plating, heat treating, etc.)	0			
	Material preparation (casting, forming, molding, forging, etc.)	0			
	Product and design engineering (tooling, new processes, etc.)	0			
	Professional services (legal, accounting, consulting, etc.)	0			
	Research and development	0			
	Raw materials provider	0			
	Testing/evaluation/validation	0			
Other services not specified elsewhere on this list	0				
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

**Section 12 Sales**

Provide your organization's 2009-2012 U.S. and non-U.S. sales information and projected 2013-2017 sales trend information. Calendar year data is preferred. Estimates are acceptable.

Note: Ensure your source of sales data is **consistent with your response in the Respondent Profile Section**. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

Note: For the purpose of this survey, Foreign Military Sales (FMS) should be considered as U.S. Government Sales and/or U.S. Government Space-Related Sales.

Source of Sales Data:	
Reporting Schedule:	

"U.S." means U.S. domestic sales; "Non-U.S." means export sales from U.S. locations		Record in \$ Thousands, e.g. \$12,000.00 = survey input \$12									
		2009		2010		2011		2012*		2013-2017	
		U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
A.	Total Sales, all Customers (in \$)										
B.	Total Non-Government Sales (as a % of part A)										
C.	Total Government Sales (as a % of part A)										
D.	Total Space-Related Sales (in \$)										
E.	U.S. Government Space-Related, Defense Sales (as a % of part D)										
F.	U.S. Government Space-Related, Non-Defense Sales (as a % of part D)										
G.	Commercial Space-Related Sales (as a % of part D)										

\* Furnish full year **estimates** for 2012.

Comments:	
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**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

**Section 13****U.S. Export Control Regulations**

A.	Do you utilize the U.S. export control system (ITAR or EAR) for the export of <b>space-related</b> products and services? Indicate to what extent from the drop-down menu.  If you do not utilize U.S. export control licenses for <b>space-related</b> products or services, select "No, Not at All" in the box and skip the rest of this section.		
B.	Has your organization lost export sales opportunities of <b>space-related</b> products or services to non-U.S. competitors because of U.S. export controls (ITAR or EAR)? If "Yes," select the total dollar amount of lost export sales opportunities from 2009-2012.	Yes/No	Lost Export Sales Estimate
To the best of your knowledge, have U.S. export control regulations had any of the following impacts on your organization? If "Yes," explain in the box provided.			
Impact		Yes/No	Explanation
Altered your organization's space-related research and development expenditures.			
Avoided the export of space-related products or services that are subject to EAR-related controls.			
Avoided the export of space-related products or services that are subject to ITAR-related controls.			
C.	Caused your organization to abandon or alter the composition of your space-related business lines.		
Caused your organization to locate or relocate space-related production/R&D facilities outside the United States due to regulatory burdens.			
Contributed to the creation of non-U.S. companies/business lines in direct competition with your space-related products or services.			
Incentivized non-U.S. organizations to "design-out" or avoid buying U.S. origin space-related products or services.			
Incentivized non-U.S. organizations to offer "ITAR-free" space-related products or services.			
Comments:			
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>			

**Section 14**

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**Section 15.a Research and Development**

In Question A, record your organization's total research and development (R&D) dollar expenditures and type of R&D expenditure. In Question B, identify your organization's R&D funding sources, by percent of total R&D dollars sourced.

Note: If your organization's annual Total R&D Expenditures and Total R&D Funding Sources do not match, explain the discrepancy in the comment box.  
 Note: Ensure your source of R&D data is **consistent with your response in the Respondent Profile Section**. In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.

Source of R&D Data:					
R&D Reporting Schedule:					
R&D Expenditures		<b>Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2009	2010	2011	2012*
A.	1. Total R&D Expenditures				
	2. Basic Research (as a percent of 1)				
	3. Applied Research (as a percent of 1)				
	4. Product/Process Development (as a percent of 1)				
	5. Total of 2 - 4 (must equal 100%)	0%	0%	0%	0%
	6. % of Total R&D Expenditures supporting space-related business lines				
R&D Funding Sources		<b>Record \$ in Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2009	2010	2011	2012*
B.	1. Total R&D Funding Sources				
	2. Internal/Self-Funded/IRAD (as a percent of 1)				
	3. Total Federal Government (as a percent of 1)				
	4. Total State and Local Government (as a percent of 1)				
	5. Universities - Public and Private (as a percent of 1)				
	6. U.S. Industry, Venture Capital, Non-Profit (as a percent of 1)				
	7. Non-U.S. Investors (as a percent of 1)				
	8. Other (specify)				
* Furnish full year <b>estimates</b> for 2012.					
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

Section 15.b		Research & Development (cont.)		
A.	From 2009-2012, have your organization's R&D expenditures been adversely impacted by reductions in U.S. Government space-related spending?			
B.	Do you anticipate your organization's R&D expenditures to be adversely impacted in the future by reductions in U.S. Government space-related spending? Explain your response below.			
C.	Identify the number of <b>space-related</b> Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts your organization has participated in by phase from 2009-2012.	Phase I	Phase II	Phase III
	SBIR Contracts			
	STTR Contracts			
D.	Has your organization had difficulty in securing private funding in order to successfully bring <b>space-related</b> research and development projects to market? If "Yes," explain below.			
Comments:				
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>				

Section 16		Capital Expenditures			
Record your organization's capital expenditures corresponding to the select categories below. Note: Ensure your source of capital expenditure data is <b>consistent with your response in the Respondent Profile</b> . In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.					
Source of Capital Expenditure Data:					
Capital Expenditure Reporting Schedule:					
Capital Expenditure Category		<b>Record in \$ Thousands, e.g. \$12,000.00 = survey input of \$12</b>			
		2009	2010	2011	2012*
A.	1. Total Capital Expenditures				
	2. Machinery, Equipment, and Vehicles (as a percent of 1)				
	3. IT, Computers, Software (as a percent of 1)				
	4. Land, Buildings, and Leasehold Improvements (as a percent of 1)				
	5. Other (specify)				
	6. Other (specify)				
B.	% of Total Capital Expenditures supporting space-related business lines				
C.	From 2009-2012, have your organization's capital expenditures been adversely impacted by reductions in U.S. Government space-related spending?				
D.	Do you anticipate your organization's capital expenditures to be adversely impacted in the future by reductions in U.S. Government space-related spending? Explain your response below.				
Identify any unique or critical equipment, infrastructure, and/or facilities owned and/or operated by your organization (e.g. space environmental simulation facilities, wind tunnels, rocket test equipment, etc.) for <b>space-related</b> applications. Provide a brief description of each.					
E.		Type of Equipment, Infrastructure, or Facility	Description		
	1.				
	2.				
	3.				
	4.				
	5.				
* Furnish full year <b>estimates</b> for 2012.					
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

Section 17.a		Employment			
Record the total number of full-time equivalent (FTE) employees in your U.S.-based operations for the 2009-2012 period. Then, estimate the percentage of these employees that perform the professional occupations indicated in parts b-j.					
Do not double count personnel who may perform cross-operational roles. Estimates are encouraged.					
Note: Ensure your source of employment data is <b>consistent with your response to Respondent Profile</b> . In other words, if you have declared this to be a Business Unit/Division-level response, this section should contain Business Unit/Division-level data.					
Source of Workforce Data:					
Reporting Schedule:					
Professional Occupations		2009	2010	2011	2012*
A.	a. Total Full Time Equivalent (FTE) Employees				
	b. Administrative, Management, & Legal Staff (as a % of a)				
	c. Facility & Maintenance Staff (as a % of a)				
	d. Information Technology Professionals (as a % of a)				
	e. Marketing & Sales (as a % of a)				
	f. Engineers, Scientists, and R&D Staff (as a % of a)				
	g. Production Line Workers (as a % of a)				
	h. Testing Operators, Quality Control, & Support Technicians (as a % of a)				
	i. Other (specify)				
	j. Other (specify)				
B.	Estimate the percentage of your total FTEs that currently work on <b>space-related</b> products/services:				
C.	Estimate the percentage of your total FTEs that perform functions that are Science, Technology, Engineering, and Mathematics (STEM)-related:				
* Furnish full year <b>estimates</b> for 2012.					
Comments:					
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>					

Section 17.b		Employment (cont.)				
Provide the number of your organization's current engineers, scientists, and R&D staff that fall within the functions and age ranges listed in the table below.						
		< 30 Years Old	30 to 40 Years Old	40 to 50 Years Old	50 to 60 Years Old	> 60 Years Old
A.	a.	U.S. Citizens - Engineers, Scientists, and R&D Staff				
	b.	Non-U.S. Citizens - Engineers, Scientists, and R&D Staff				
B.		Indicate how many unfilled vacancies your organization currently has for the following types of positions: - Engineers, Scientists, and R&D Staff - Production Line Workers - Testing Operators, Quality Control, & Support Technicians  Please explain any difficulties in filling these vacancies below.				
Identify any unique <b>space-related</b> skills and/or competencies that your organization may have. Identify the general type of skill and/or competency from the drop-down menu then describe it in the right hand box.						
		Type of Skill or Competency	Explanation			
C.	1.					
	2.					
	3.					
	4.					
	5.					
Comments:						
<b>BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act</b>						

**Section 18 Obstacles Affecting Long-Term Viability**

Identify the top five issues and challenges affecting the long-term viability of your organization's product line(s) or service(s). Select five of the issues/challenges below, ranking them 1 to 5, with 1 being your top concern.				
A.	Barriers to entry in the commercial space market		Labor Costs	
	Buy American Act Waivers		Pension Costs	
	Counterfeit Parts		Proposed cuts to U.S. Government space programs	
	Difficulty presenting new, innovative products to the U.S. Government		Proximity to Customer	
	Domestic Competition		Proximity to Supplier	
	Environmental Regulations/Remediation		Qualifications/Certifications	
	Export Controls/ITAR Regulations		R&D Costs	
	Foreign Competition		Skills Retention	
	Foreign Subsidies/Import Restrictions		Taxes	
	Government Acquisition Process		U.S. Material Availability	
	Government Purchasing Volatility		U.S. Supplier Reliability	
	Government Regulatory Burden		Variability of Demand	
	Healthcare		Other (specify)	
	Non-U.S. Material Availability		Other (specify)	
	Non-U.S. Supplier Reliability		Other (specify)	
There are many federal and state government programs and services available to assist your organization to better compete in the global marketplace. If your organization would like more information regarding these government programs, select the specific areas of interest below. The Commerce Department will follow-up with your organization regarding your selections.				
B.	Business development (joint ventures, new markets, etc.)		Patents and trademarks	
	Energy and environmentally conscious manufacturing		Product/service development (including manufacturing standards, processes, and practices)	
	Export licensing (ITAR/EAR)		R&D programs	
	Financing (access to capital, loans, etc.)		Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts	
	Global export opportunities		Training Opportunities	
	Government procurement guidelines and e-commerce		Country Commercial Guides (specify countries in box)	
	Manufacturing technology development (including acquiring, licensing, and/or commercializing federally developed technologies)		Other (specify)	
	Marketing assessment skills		Other (specify)	
Comments:				

**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**

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**Section 19**

**Certification**

The undersigned certifies that the information herein supplied in response to this questionnaire is complete and correct to the best of his/her knowledge. It is a criminal offense to willfully make a false statement or representation to any department or agency of the United States Government as to any matter within its jurisdiction (18 U.S.C.A. 1001 (1984 & SUPP. 1197))

Organization Name	
Organization's Internet Address	
Name of Authorizing Official	
Title of Authorizing Official	
E-mail Address	
Phone Number and Extension	
Date Certified	

In the box below, provide any additional comments or any other information you wish to include regarding this survey assessment.

How many hours did it take to complete this survey?	
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**BUSINESS CONFIDENTIAL - Per Section 705(d) of the Defense Production Act**