



INTERNATIONAL  
**TRADE**  
ADMINISTRATION

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Expansion

# Let's Discuss

- + National Export Initiative
- + Aerospace's role in U.S. exports
- + What we export in aerospace products
- + Where we export aerospace products
- + Commerce Department export programs
- + A look to the future



“So tonight, we set a new goal”....increase U.S. exports over the next five years, supporting two million jobs in America.

President Obama  
State of the Union  
January 27, 2010

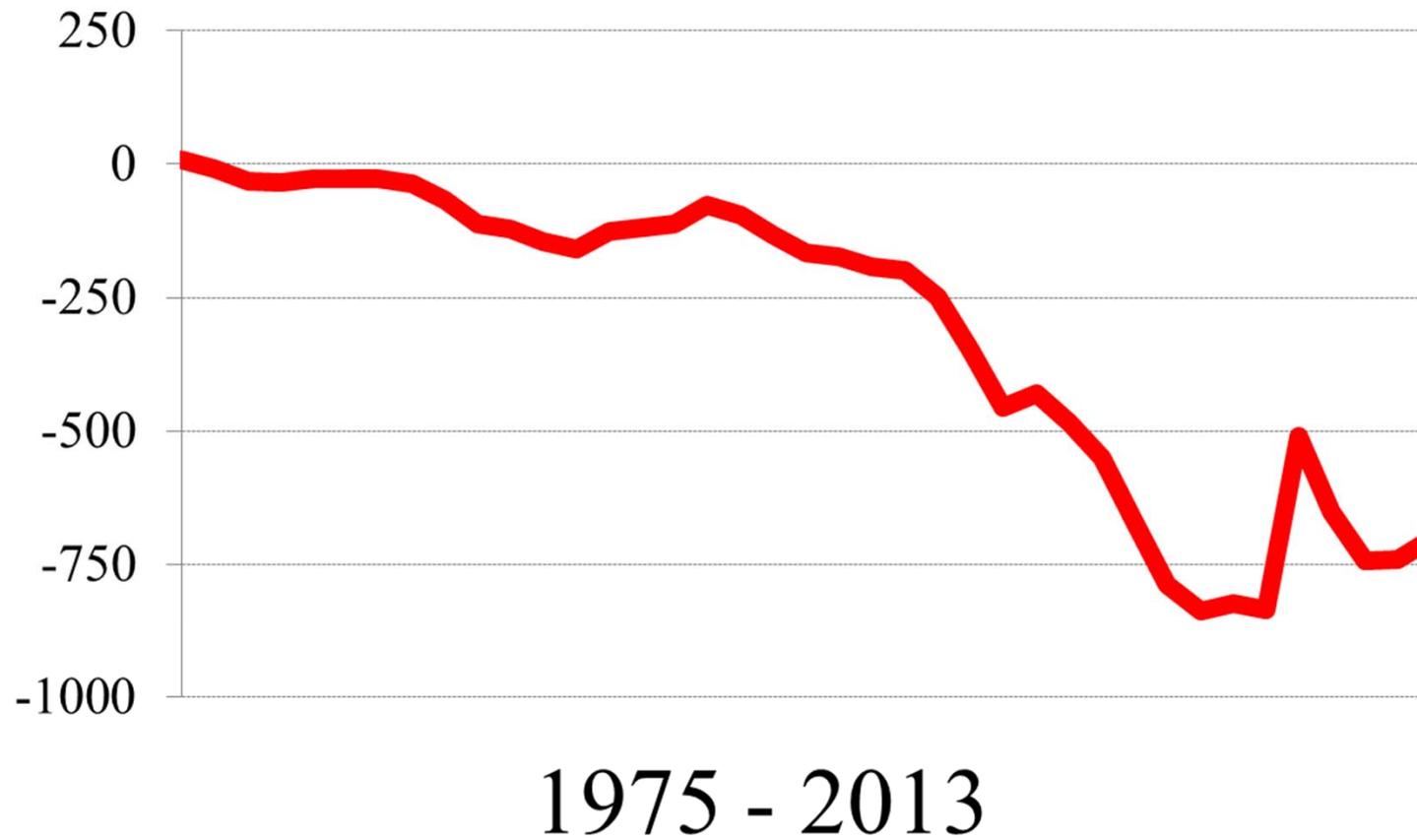
# CREATING JOBS WITH EXPORT GROWTH

- US exports in 2013: \$2.3 trillion – a record.
  - Last record: 2012, with \$2.2 trillion
- American jobs supported by exports increased to 11.3 million in 2013.

Exports \$1 billion	=	Jobs 5,590
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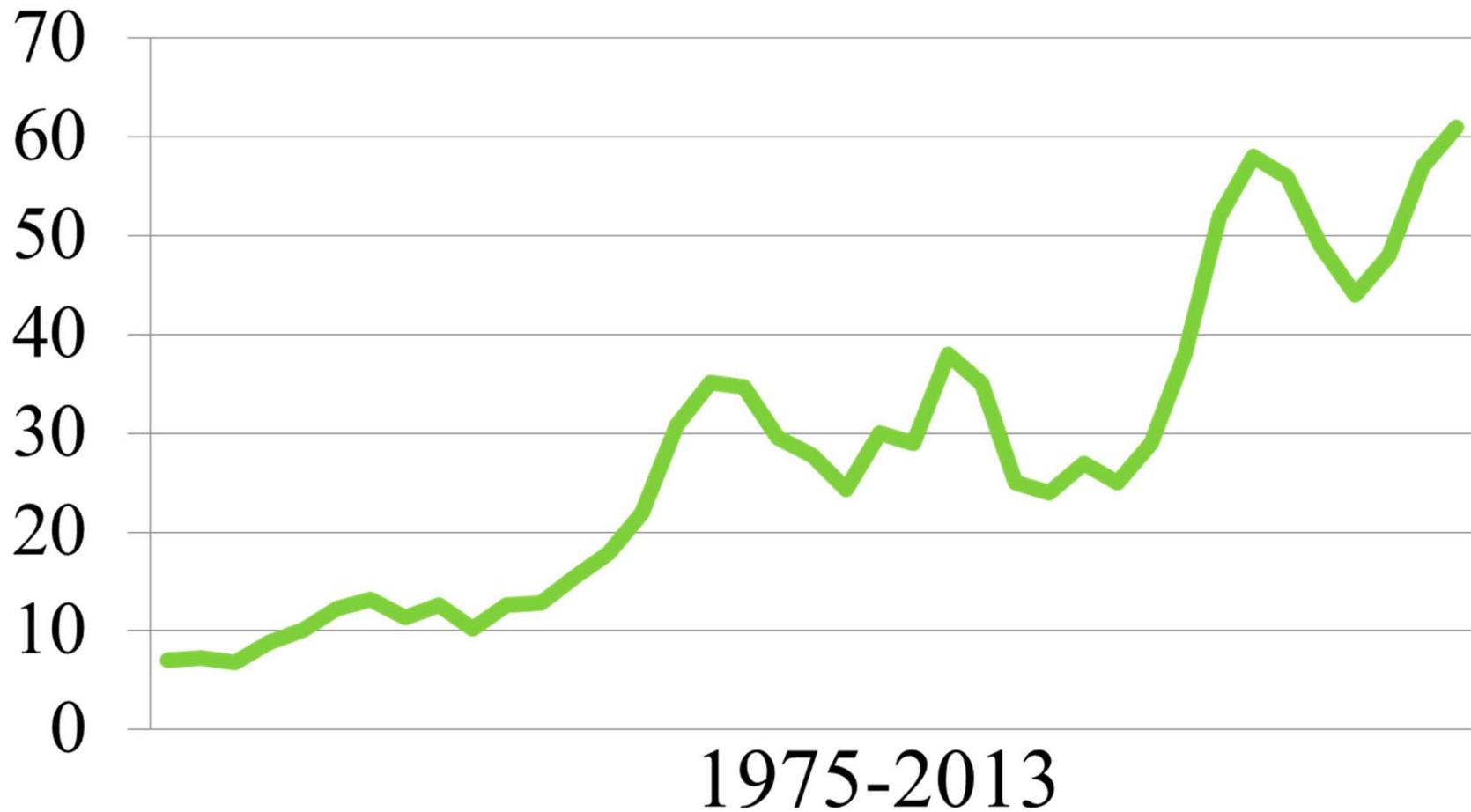
# U.S. Balance of Trade – All Goods

\$ billions



# U.S. Balance of Trade – Aerospace

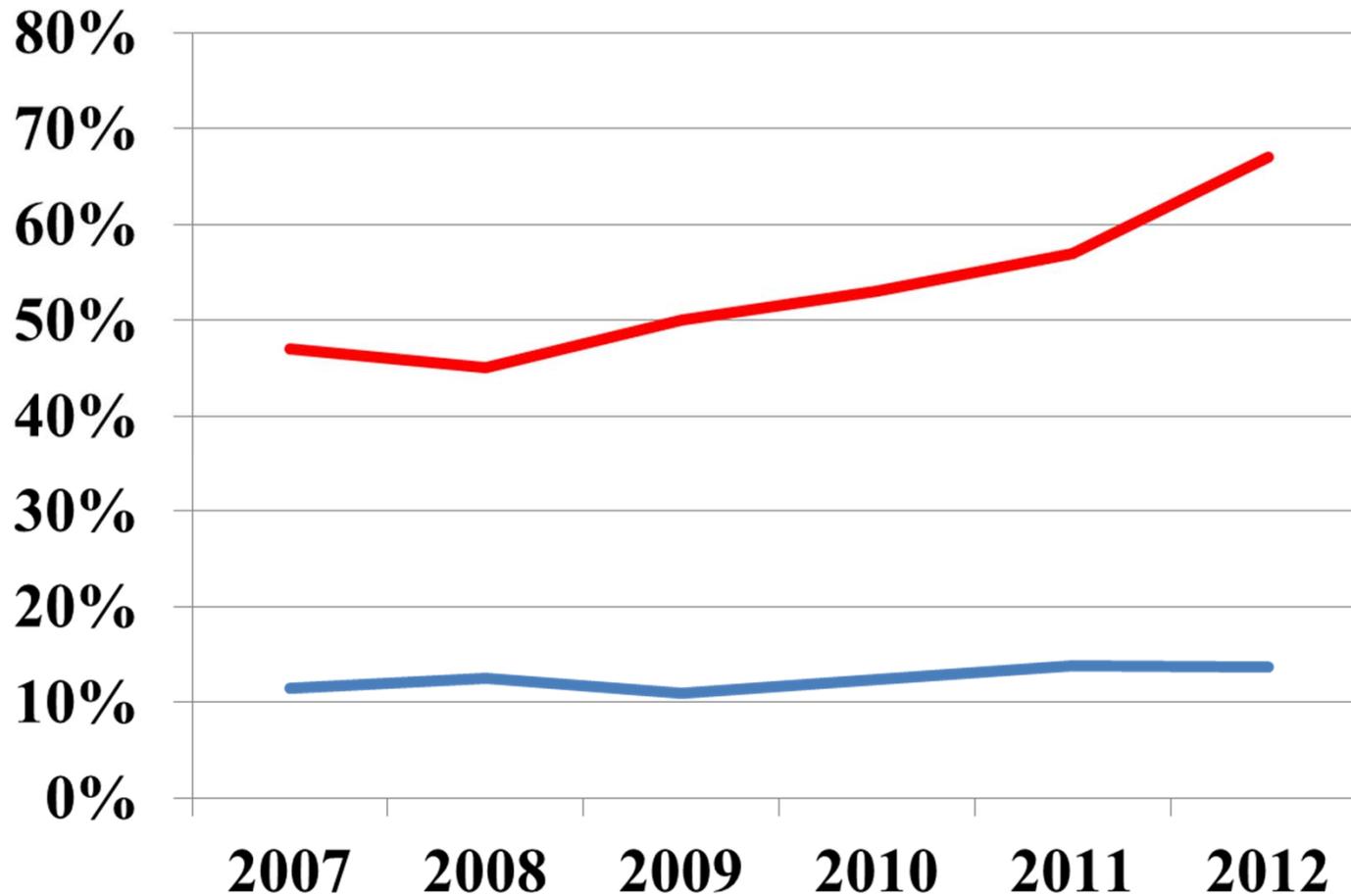
\$ billions



# Percent of U.S. output exported

Red=Aerospace

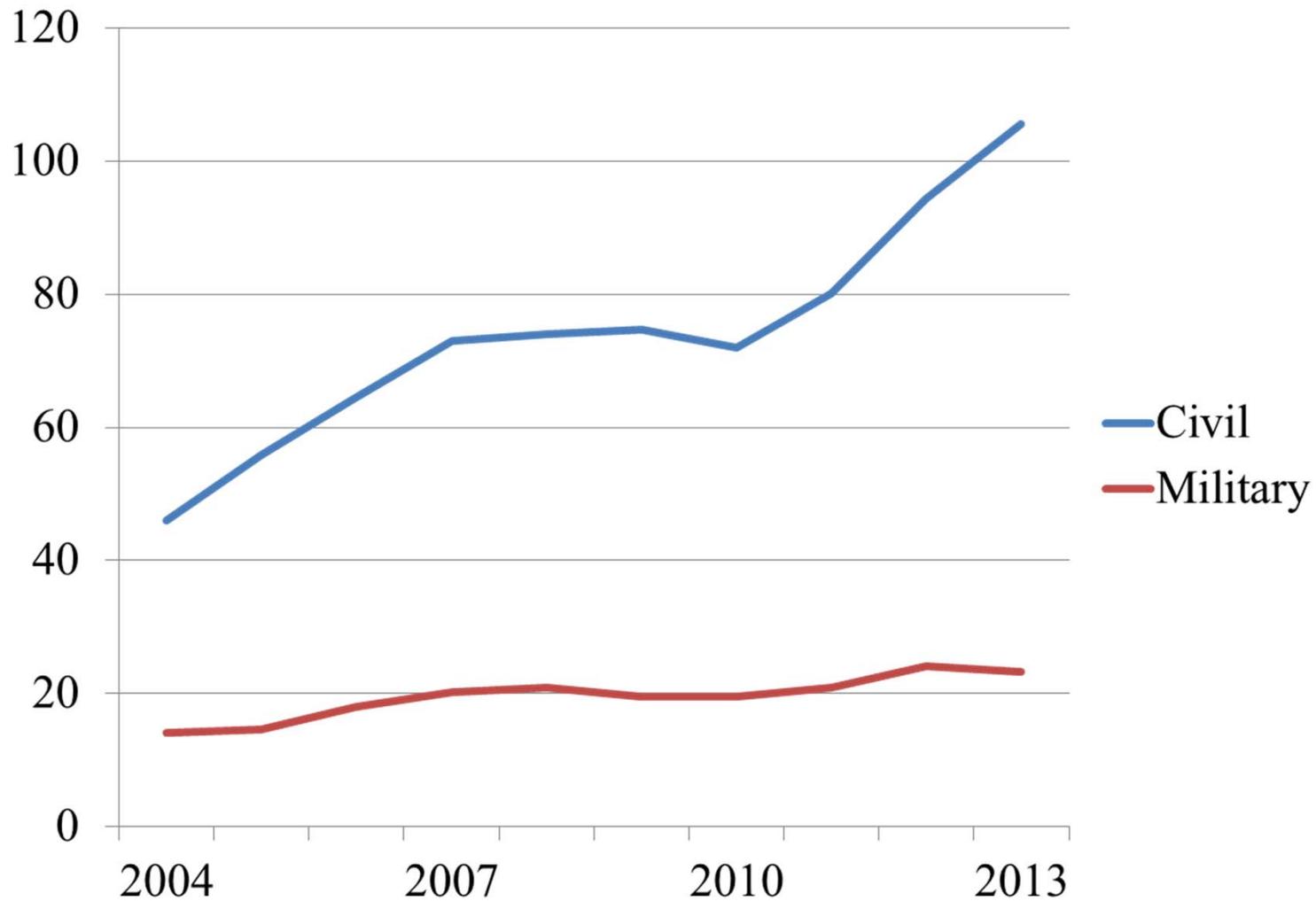
Blue=Total GDP



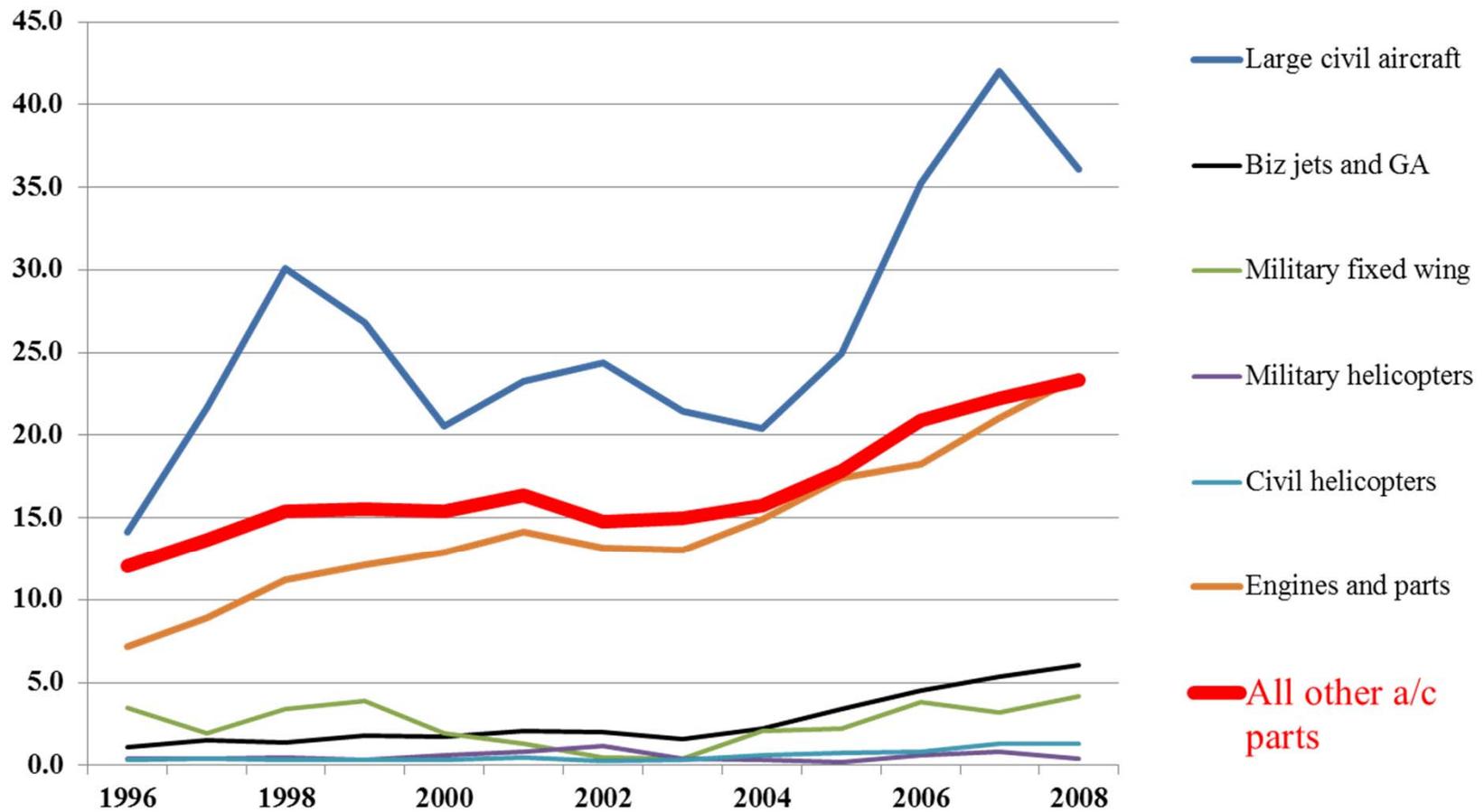
# Aerospace – a Crown Jewel in U.S. Exports

- + **Highest trade surplus**, year after year, of all manufacturing sectors
- + **More jobs** created for American workers from exports of aerospace products than from any other industry
- + High tech, high wage jobs: aero prod. workers **income 2/3 higher** than mfg prod. workers in general

# U.S. Aerospace Exports, \$ Billions



# U.S. Aerospace Exports (\$ billions)



# Top 10 U.S. Aero Export Markets

## 2009-2013, \$ Billions of Exports

China - \$42

Germany – \$31

France - \$41

Brazil - \$28

UK - \$38

UAE - \$23

Japan - \$34

Singapore - \$20

Canada - \$33

Korea - \$16

How can the U.S.  
Department of  
Commerce help U.S.  
aerospace exporters?

# Interface with Foreign Governments

- Do you have questions about what products may be imported into country X?
- Is there a questionable requirement being imposed on you?
- Are you running into mundane snags (e.g., customs issues) delaying your shipments?

Pop Quiz!

ITAR

General Dynamics is committed to support and enable the Defence Industrial Strategy and Policy

- General Dynamics will establish a Joint Programme Office in the UK to support the FRES programme and act as the focal point for its FRES partnering activities with the MoD and industry
- General Dynamics recognises the requirement for a self-sustaining UK industrial base for through-life capability management and capability growth for FRES
- General Dynamics will transfer the design authority and IPR to the UK and manufacture PIRANHA V in the UK
- General Dynamics will deliver an ITAR-free platform leveraging significant off-shore technology expertise that will benefit the UK industrial base.

## General Dynamics United Kingdom Limited

General Dynamics United Kingdom Limited is a leading prime contractor and complex systems integrator providing network enabled solutions for the UK's Ministry of Defence and the export market.

With more than 1,700 highly skilled employees and over 40 years experience delivering complex systems, we have the technical leadership, manufacturing expertise and prime contract management skills to deliver future network enabled battlespace capabilities.

Today, we are a recognised leader in the defence industry and the third largest defence prime contractor in the UK. We are part of the General Dynamics Corporation, one of the top six defence companies in the world, employing 82,900 people worldwide and with anticipated revenues of more than \$27 billion for 2007.

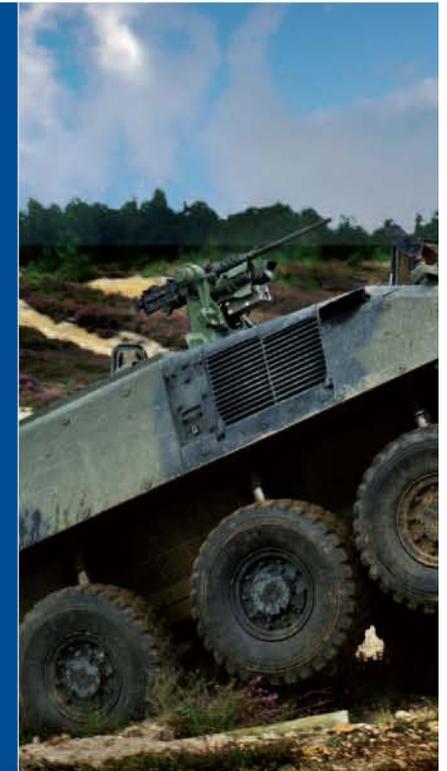
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The early delivery of  
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DELIVERING BATTLESPACE CAPABILITIES

DELIVERING BATTLESPACE CAPABILITIES

**GENERAL DYNAMICS**  
United Kingdom Limited

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## Export potential for UK to lead world market

BAE Systems brings an integration capability to the FRES programme that will ensure that Intellectual Property for the new vehicle fleet will be held entirely within the UK. In building a FRES Vehicle Integrator team, the ability to maintain UK sovereignty over the design has been a key requirement.

This ensures there are no ITAR or other restrictions in accessing the potential £1bn per year export market and no dependence on third parties for upgrades.

# SSTL

## Microsatellite Gas Propulsion System

SSTL's microsatellite Propulsion System is designed as an in-orbit micropropulsion system test-bed. The first application is ESA's PROBA2 spacecraft. The core design of the system is based around heritage design of SSTL's benchmark Microsatellite Xenon propulsion system technology. The design of the PROBA 2 system is optimised to constitute a platform to incorporate the following demonstration units and thus exhibit an application of their use:

**GOGEX:** Four cool gas generators. These have the capability to re-fill the tank with a certain amount of gaseous nitrogen (>99% pure) at near ambient temperature. The nitrogen is generated from a Sodium Azide based solid charge which generates the nitrogen when pyrotechnically initiated on demand.

**FSD** – one fibre optic pressure and temperature sensor.



### Features:

- **Completely ITAR free**
- Gaseous propellants are used to avoid any liquid sloshing effects
- Propellant is stored in a 2.1 litre propellant tank, of titanium construction. The tank has a maximum expected operation pressure of 44 bar, with a burst factor of > x10
- The propulsion system is built as a module with integrated thruster. The thruster alignment can be modified at both module and spacecraft levels
- Bang-bang pressure regulation control allows thrust level to be throttled between 10 to 50mN
- SSTL's flight proven resistojet thruster with either 15, 30 or 50 Watt redundant heaters
- Series solenoid valves to isolate the propellant stored in the tank
- Can be supplied with integrated electronic controller with interface to CAN bus. Could be modified to RS485 if required.



### Applications

- Launcher Injection correction
- Constellations station keeping and acquisition
- Orbit height maintenance

### Specifications

- Propellant:
  - 500g Xenon
  - 176g Nitrogen
- Thrust: 20 – 50 mN
- Storage Pressure: 40bar abs maximum @ 20°C
- Specific Impulse:
  - 42 sec Xenon @ 300°C
  - 100 sec N<sub>2</sub> @ 300°C
- Total Impulse: 380 N.sec
- System Volume: 2.1 litres
- Life duration: > 3 years

### Environmental

- Operating temperature: -20°C to +60 °C
- Vibration > 13.1 gms (all axes)

### Power Supply

- Operating voltage: 28Vdc nominal (24 – 38 Vdc)
- Valve power: 19 Watts open, 0.6 Watts hold
- Thruster : 2 x 15 Watt heaters (30 & 50 W optional)

### Physical Characteristics

- Dry mass: 6.72 kg
- Dimensions: 400mm x 264mm x 215mm (height)

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# Export Control Reform

- “See through” rule affects civil aircraft
- Reform helps provide greater specificity about what is “military” and what is “dual-use”
- Aerospace benefits the most from Strategic Trade Authorization (STA) after reform

# Trade Promotion Events

- Aerospace Trade Mission to Brazil
- Farnborough Air Show
  - “Global Chat”
  - Foreign buying delegations
  - Two webinars in advance
- Market research
- Gold Key Service
- Market Development Cooperator Program
- <http://export.gov/industry/aerospace/index.asp>

## Upcoming Events

Certified Trade Show: Eurosatory June 16-20, 2014  
Paris, France

Trade finance webinar for aerospace exporters, July 24

Certified Trade Show: Farnborough Air Show,  
July 14-20

Aerospace Executive Service at Africa Aerospace and  
Defense 2014, September 16-29, Pretoria, South  
Africa

# Trade Policy

- Behind the scenes gov't-gov't talks
- Formal dispute resolution
- Trade negotiations
  - Trans-Pacific Partnership
  - Transatlantic Trade & Investment Partnership
- Encouraging signatories to the WTO
  - Aircraft Agreement

# U.S. Regulations

- Export Certificates of Airworthiness
- Aircraft engine interface components
- Safety Management System
- EPA rule on flame retardant, “decaBDE”

# Foreign Challenges to U.S. Competitiveness

- Foreign gov't export controls
- Subsidies – Airbus in spotlight
- Offsets
- Foreign validation of FAA approval
- Corruption
- “Buy National” (Airbus tanker bid)

# A Look to the Future

- Industry call for USG initiative on all defense exports
- Continued export control reform – one set of regulations?
- Geopolitical tensions (witness Brazilian fighter competition)

Thank you!

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International Trade Administration

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