



U.S. DEPARTMENT OF COMMERCE BUREAU OF INDUSTRY AND SECURITY

OFFICE OF TECHNOLOGY EVALUATION INDUSTRIAL STUDIES DIVISION

U.S. INTEGRATED CIRCUIT DESIGN & FABRICATION

National Defense Industrial Association
Trusted Microelectronics Workshop
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Bureau of Industry and Security (BIS)

Mission:



Advance
National Security,
Foreign Policy
and Economic
Interests

- Develops export control policies
- Issues export licenses
- Prosecutes violators to heighten national security
- Develops and implements programs that ensure a technologically superior defense industrial base

BIS/OTE Industry Surveys & Assessments Background

- Under Section 705 of the Defense Production Act of 1950 and Executive Order 13603, ability to survey and assess:
 - Economic health and competitiveness
 - Defense capabilities and readiness
- Enable industry and government agencies to:
 - Share data and collaborate in order to ensure a healthy and competitive industrial base
 - Monitor trends and benchmark industry performance
 - Raise awareness of diminishing manufacturing and technological capabilities

BIS/OTE Industry Surveys & Assessments

Issues Examined

- Economic health, competitiveness, and financial performance
- Production capabilities and constraints
- Supply chain network, customers and suppliers
- Foreign competition, sourcing, and dependencies
- Sales, exports, market share
- Investment and R&D
- Employment and core competencies
- Export controls and licensing
- Cyber security
- Other topics as needed

OTE Industry Surveys & Assessments

- Over 55 U.S. industry studies and 150+ surveys since 1986, including:
 - Critical Facilities – Cleared/Unclassified Operations (in progress)
 - Bare Printed Circuit Boards (in progress)
 - Titanium, Magnesium, and REEs (in progress)
 - U.S. Rocket Propulsion Industry (in progress)
 - U.S. Strategic Material Supply Chain Assessment: Carbon Fiber Composites
 - U.S. Space Industrial Base “Deep Dive” Assessment
 - U.S. Underwater Acoustics Transducer Industry
 - Consumers of Electro-Optical Satellite Imagery
 - Cartridge and Propellant Actuated Devices (CAD/PADs) – 4th Review
 - Telecommunications Industry Infrastructure
 - NASA Industrial Base – Post-Space Shuttle/Constellation Program
 - Healthcare and Public Health Sector – Foreign Sourcing
 - Cost-Metric Assessment of Diminishing Manufacturing Sources and Material Shortages
 - Counterfeit Electronics
 - Imaging and Sensors Industry
 - U.S. Shipbuilding and Repair Industry
 - U.S. Integrated Circuit Design and Fabrication Capability (update in progress)
 - C-17 Aircraft Supplier Impact Assessment (update in progress)
 - Textiles, Apparel, and Footwear (update in progress)

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Source: U.S. Department of Commerce,
Bureau of Industry and Security. UNCLASSIFIED

BIS/OTE U.S. Integrated Circuit Design and Fabrication Capability Assessment - 2009

- In 2005, the Defense Science Board (DSB) Task Force published a report on High Performance Microchip Supply
 - Focused on future ability of U.S. industrial base to meet Defense Department and other critical USG needs
 - Concern, based on anecdotal data, that U.S. industry had migrated offshore
- In 2007, BIS/OTE and DOD initiated an industrial base assessment to better characterize the initial findings of the DSB Task Force

BIS/OTE U.S. Integrated Circuit Design and Fabrication Capability Assessment - 2009

- BIS/OTE reviewed the following:
 - U.S. conventional and radiation-resistant capabilities
 - Outsourcing of capabilities
 - Financial health
 - Outlook for maintaining those activities thru 2011
- BIS/OTE reported broad U.S. capability to design and fabricate conventional and radiation-resistant IC's across almost all technology nodes, materials, wafer sizes, and device types
 - Despite some increase in outsourcing, this capability will remain in the United States
 - Recommended that USG report every two years on changes in health, competitiveness, and global operations of industry which could have significant repercussions for U.S. IC industry and national security

BIS/OTE U.S. Integrated Circuit Design and Fabrication Capability Assessment - 2016

- As part of multifaceted effort to mitigate Chinese government semiconductor strategy, BIS/OTE asked to update and expand the 2009 assessment
- Resulting BIS/OTE dataset and analysis will provide USG with a baseline understanding of the capabilities, health, and competitiveness of the U.S. industry
- To be initiated in fall 2016, survey will cover a broad range of topics such as:
 - Packaging, Assembly, and Test
 - Workforce
 - Business Environment
 - Erosion of Market Position
 - Customers and Critical Suppliers
 - Counterfeits and Cyber Security
 - Unfair Trade Practices
 - Challenges for Trusted Suppliers
 - Opportunities for USG Assistance
 - Concepts to Strengthen U.S. Industry

BIS/OTE U.S. Integrated Circuit Design and Fabrication Capability Assessment - 2016

- Next steps:
 - OTE in early phase of survey instrument design and development
 - Planning and conducting site visits to select fabrication and design companies and other entities across the United States
 - Opportunity for industry, organizations, and other agencies to have direct input into the issues covered in BIS/OTE survey and related assessment activities

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