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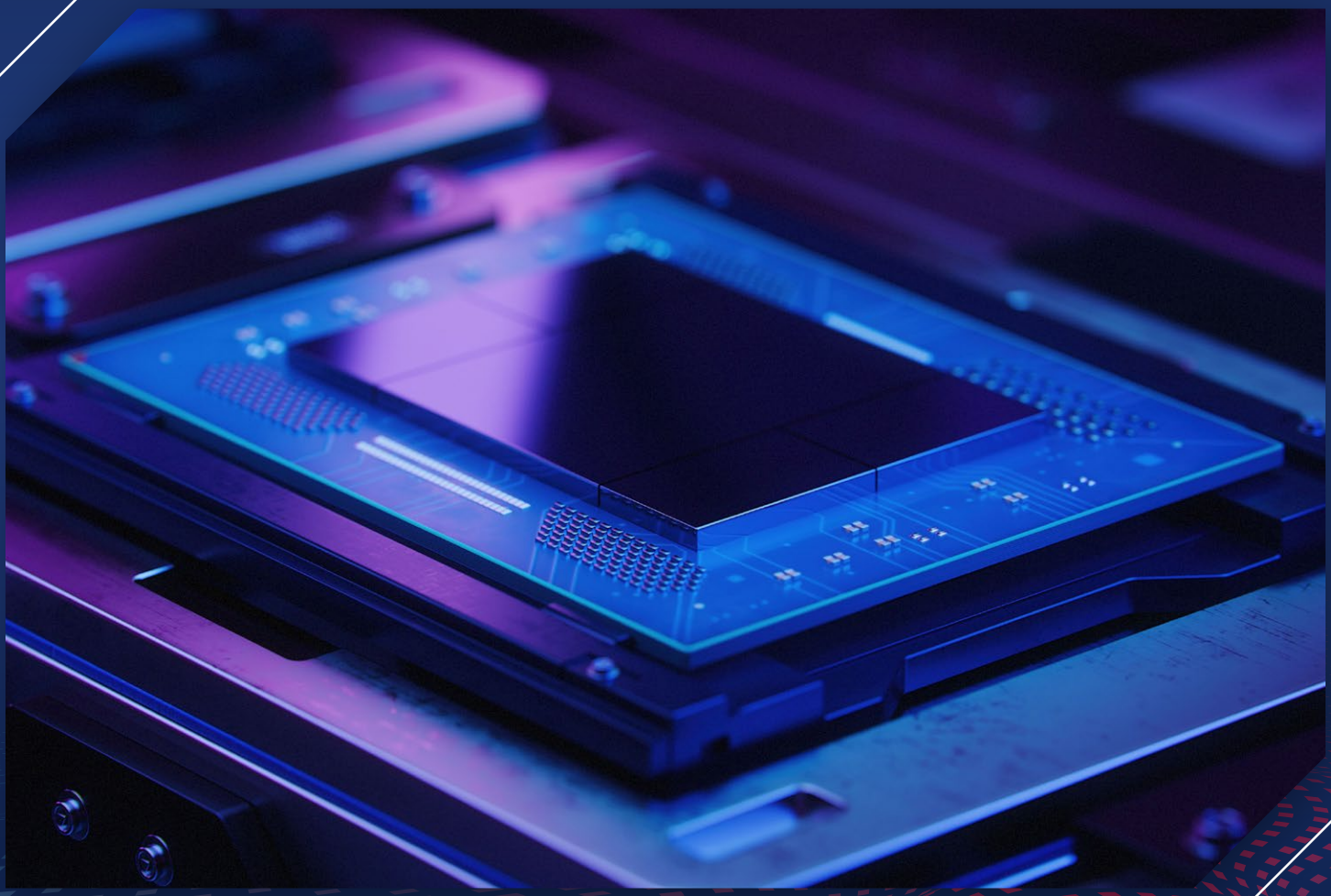
NY SMART

I - CORRIDOR

NEW YORK SEMICONDUCTOR MANUFACTURING AND RESEARCH TECHNOLOGY INNOVATION CORRIDOR TECH HUB



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University at Buffalo
Center for Supply Chain Analytics
School of Management

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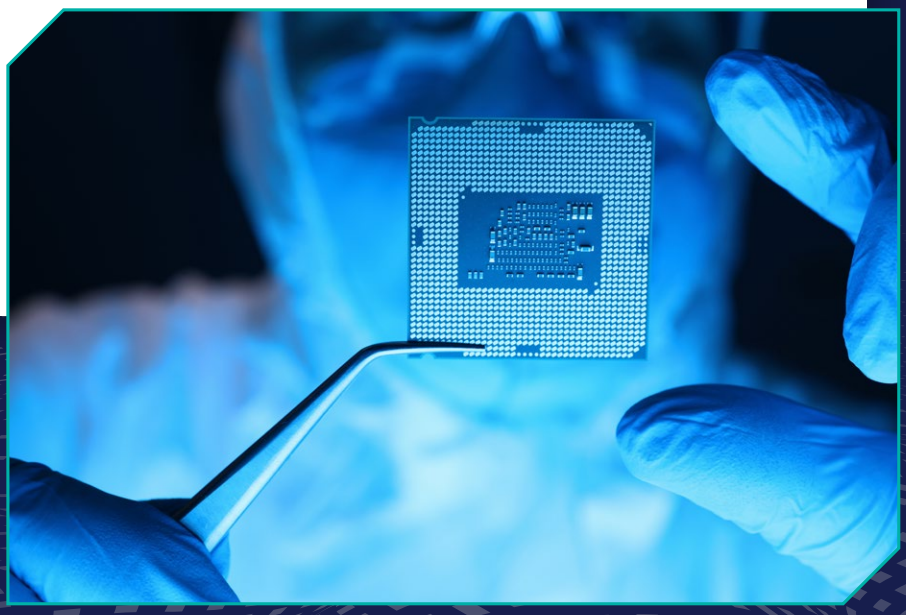


GROWING NEW YORK STATE'S SEMICONDUCTOR SUPPLY CHAIN

THE OPPORTUNITY

Semiconductor fabrication (fab) facility capacity and the semiconductor supply chain continue to grow throughout the United States as industry, academia and governments invest in capital, research and development, and infrastructure. Private investments in the semiconductor supply chain exceeding $540 billion have been announced recently, supporting more than 500,000 jobs across the nation.[1]

Worldwide semiconductor sales have grown from $139 billion in 2001 to more than $529 billion in 2023, with growth continuing into the first quarter of 2025.[2, 3] The industry is now on track to reach $1 trillion in global annual revenue by 2030.[4]

Since 2020, more than $131 billion in New York State semiconductor investments have been announced for new facility development and expansion by firms, including Corning, Edwards Vacuum, GlobalFoundries, Menlo Microsystems, Micron Technology, NY CREATES, Onsemi, TTM Technologies and Wolfspeed.[1] At the same time, New York State Governor Hochul announced $10 billion in state resources supporting the semiconductor industry, as well as formation of GO-SEMI, which will provide information, resources and referrals to existing and new semiconductor supply chain firms.[5]

By 2034, one in four American-made chips will be manufactured within 350 miles of the NY SMART I-Corridor region.[6]

These investments, paired with New York's Green CHIPS Act, make New York a highly attractive ecosystem for semiconductor investment. A sample of the growing base of incentives and resources available to New York's semiconductor supply chain includes:

Worldwide semiconductor sales have grown from $139 billion in 2001 to more than

$529 billion in 2023,

with growth continuing into the first quarter of 2025. The industry is now on track to reach $1 trillion in global annual revenue by 2030.

1 FINANCIAL INCENTIVES: TAX CREDITS, GRANTS, DISCOUNTED UTILITIES AND TECHNICAL ASSISTANCE

- **$10 billion New York State Green CHIPS Incentive Package**[7]
  A suite of tax credits and discounted utility delivery rates will be available to semiconductor manufacturers and supply chain companies establishing or expanding environmentally friendly operations in the state. This initiative aims to attract major investments and promote sustainable manufacturing practices.
- **$10.9 million Semiconductor Growth Access Program (SGAP)**[8]
  Funds can be leveraged by small businesses growing or pivoting into the semiconductor supply chain for legal, accounting and financial services.
- **$2.5 million in Tech Hub technical assistance and incentive funds**
  Support growth and expansion of firms, leveraging capabilities of the region's economic development organizations and manufacturing extension partnership centers.
- **$300 million in site development funds through FAST NY**[9]
  Grants for predevelopment and infrastructure investments to create shovel-ready sites.

2 RESEARCH AND DEVELOPMENT CAPACITY

- **$10 billion invested in NY CREATES' High-NA EUV center**[10]
  This public-private resource can be engaged for research, development and commercialization of semiconductor technologies.
- **Millions invested in university R&D and facility development**
  University at Buffalo Center for Advanced Semiconductor Technologies; Department of Materials Design and Innovation; and Center for Materials Informatics[11]
  Binghamton University Small Scale Systems Integration and Packaging Center: A New York State Center of Excellence[12]
  SUNY Polytechnic Semiconductor Processing Lab[13]
  Syracuse University Center for Advanced Semiconductor Manufacturing[14]
  Cornell University Superior Energy-efficient Materials and Devices (SUPREME) Center[15]

3 $550 MILLION WORKFORCE INVESTMENT[5]

- **$200 million ON-RAMP program**[16]
  New employer-driven training programs will add to the state's robust existing workforce pipelines.
- **Hundreds of degree, certificate and micro-credential programs**[17]
  From PTECH programs to community colleges and top-tier universities across the state, New York is preparing qualified candidates eager for new employment opportunities.

BY 2034,

ONE IN FOUR
AMERICAN-MADE CHIPS WILL BE MANUFACTURED
WITHIN 350 MILES
OF THE NY SMART I-CORRIDOR REGION

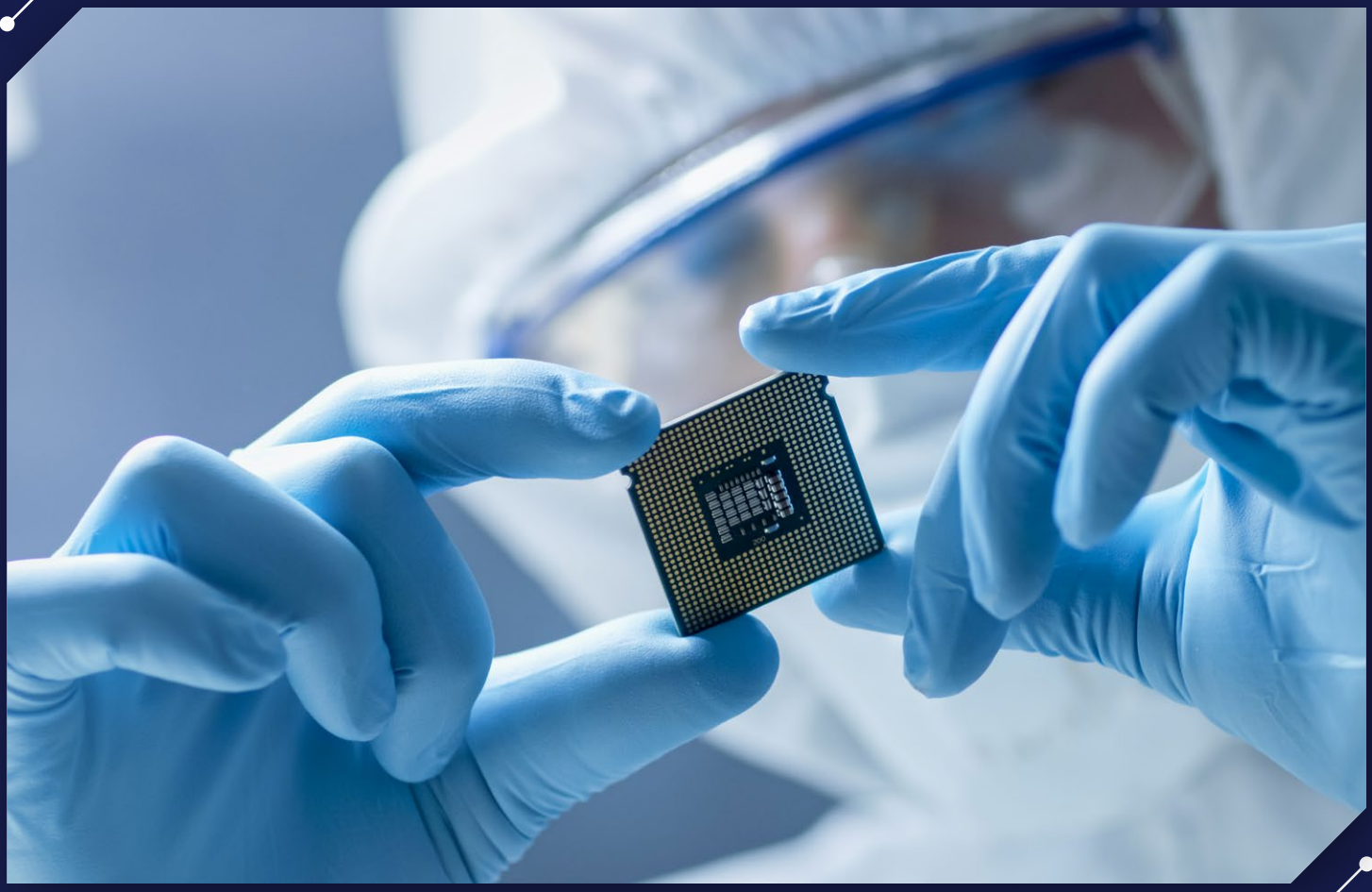
INDUSTRY BUYING NEEDS

THE MAKING OF A CHIP – WHERE DO SUPPLIERS FIT IN?

Five major semiconductor manufacturers with existing or planned fab facilities in or near New York State include Intel, GlobalFoundries, Micron Technology, Onsemi and Wolfspeed. Among the 169 suppliers to these firms, 14 tier one firms are common to all, five of which represent most expenditures: IBM, ASML Holding, Applied Materials Inc., 3M Co. and Newmont Corp. These five firms are, in turn, supported by more than 175 tier two suppliers who provide such components as:

- Silicon wafers
- Substrate materials
- Photoresist
- Industrial-grade and specialty gases and chemicals
- Etching materials
- Dopants
- Dielectric materials
- Metallization materials
- CMP slurries
- Cleaning chemicals
- Packaging materials
- Testing and inspection equipment
- Advanced materials

Demand is rising across all tiers for service industry providers, including logistics, warehousing, facility maintenance, machine shops and business support services.



NEW YORK STATE SUPPLIER OPPORTUNITIES

In addition to general demands driven by the semiconductor industry's growth, many fabs and supply chain participants are seeking New York State-based suppliers of specific materials, products and services. Through interviews with potential buyers, the Tech Hub SCAN team has uncovered the following specific needs:

- Bulk chemicals and gases
- Powder base materials for thermal spray coatings
- Teflon-lined piping
- Control valves
- PCB suppliers
- Lab support/testing
- Equipment refurbishment services
- Raw materials warehousing with parameter control
- Logistics

DO YOU SUPPLY ONE OF THESE PRODUCTS OR SERVICES?

ARE YOU A BUYER SEEKING NEW YORK STATE SUPPLIERS?

CONTACT
JENNIFER FLAGG
AT MGT-CSCA@BUFFALO.EDU
TO DISCUSS HOW THE NY SMART I-CORRIDOR TECH HUB SCAN TEAM CAN CONNECT YOU WITH POTENTIAL BUYERS/SUPPLIERS.

DEEP DIVE

SEMICONDUCTOR SUPPLIER REQUIREMENTS

Are you interested in engaging? Semiconductor fabs and suppliers must adhere to strict quality control requirements. The tables below provide an overview of supplier requirements for Global Foundries, Micron, Intel, TSCM, Samsung and Qualcomm.

GLOBAL FOUNDRIES CERTIFICATIONS

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Suppliers are expected to have a documented and certified Quality Management System aligned with ISO 9001 to ensure consistency and control over product and service quality.
	IATF 16949	Required for suppliers serving automotive customers, with emphasis on defect prevention and waste reduction.
Environmental Management	ISO 14001	Encouraged for all suppliers to demonstrate an effective environmental management system that minimizes environmental impact.
	ISO 50001	Suppliers are encouraged to implement energy management systems for sustainable energy performance.
Occupational Health and Safety	ISO 45001	GlobalFoundries expects suppliers to maintain a safe work environment with a formal occupational health and safety management system per ISO 45001 standards.
Information Security	ISO/IEC 27001 or equivalent	Suppliers must ensure protection of data and information systems in alignment with cybersecurity and confidentiality expectations.
Sustainability and Ethics	GF Supplier Code of Conduct	Suppliers must follow GF's Code, which aligns with the RBA Code of Conduct, covering labor rights, business ethics and environmental protection.
	RBA Code of Conduct	Adoption of the Responsible Business Alliance standards is required or strongly encouraged for all strategic and Tier 1 suppliers.
Training and Development	Supplier Awareness and Ethics Training	Suppliers are expected to engage in periodic training programs covering compliance, ethics and sustainability.
Business Continuity	Business Continuity Plan (BCP)	Suppliers must establish and maintain a documented BCP to mitigate operational risks and ensure uninterrupted supply to GF fabs.
Supplier Audits and Monitoring	GF Supplier Handbook Compliance	GF reserves the right to conduct supplier audits to ensure alignment with QMS, environmental practices and ethical standards.

MICRON CERTIFICATIONS

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Micron maintains an enterprise-wide ISO 9001 certification, ensuring a robust quality management system across its operations. Suppliers are expected to align with this standard to guarantee consistent product and service quality.
	IATF 16949	For suppliers involved in automotive-related processes, compliance with IATF 16949 is required. This standard emphasizes defect prevention and reduction of variation and waste in the supply chain.
	ANSI/ESD S20.20	Suppliers must adhere to ANSI/ESD S20.20 to ensure proper electrostatic discharge control, safeguarding sensitive electronic components during manufacturing and handling.
Environmental Management	ISO 14001	Micron's facilities are certified to ISO 14001:2015, demonstrating a commitment to effective environmental management systems. Suppliers are encouraged to obtain this certification to improve their environmental performance.
	ISO 50001	Several of Micron's manufacturing facilities are certified to ISO 50001:2018, focusing on energy management systems. Suppliers are encouraged to follow a systematic approach to achieve continual improvement in energy performance.
Occupational Health and Safety	ISO 45001	Micron's facilities are certified to ISO 45001:2018, ensuring a safe and healthy workplace. Suppliers are expected to implement similar occupational health and safety management systems.
Information Security	ISO 27001	Suppliers are required to implement and maintain an Information Security Management System (ISMS) certified to ISO 27001. Micron may request annual verification of this certification or accept SOC 2 Type II or equivalent standards.
	SEMI E187	Suppliers providing semiconductor-related equipment and services are expected to adhere to SEMI E187, which specifies cybersecurity and data integrity requirements—covering secure OS configuration, network protection, malware controls and secure data logging to ensure traceability and protect intellectual property.
Sustainability and Ethics	Micron Supplier Code of Conduct	Suppliers must adhere to Micron's Supplier Code of Conduct, which incorporates the Responsible Business Alliance (RBA) Code of Conduct, covering labor, ethics, health and safety, and environmental standards.
	Responsible Business Alliance (RBA) Code of Conduct	Micron is a member of the RBA and expects its suppliers to comply with its standards, promoting ethical practices throughout the supply chain.
Training and Development	Supplier Training Programs	Micron provides training and support to suppliers on quality standards and requirements, ensuring alignment with Micron's expectations and continuous improvement.
Business Continuity	Business Continuity Plan (BCP)	Suppliers are required to have a documented Business Continuity Plan to mitigate potential disruptions and ensure the continuous supply of products and services.

INTEL CERTIFICATIONS

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Demonstrates a robust quality management system. Intel requires suppliers to obtain this certification to ensure consistent product and service quality.
	IATF 16949	Required for suppliers involved in automotive-related processes, emphasizing defect prevention and reduction of variation and waste in the supply chain.
Environmental Management	ISO 14001	Specifies requirements for an effective environmental management system, helping suppliers improve their environmental performance.
	ISO 50001	Focuses on energy management systems, enabling suppliers to follow a systematic approach in achieving continual improvement of energy performance.
Occupational Health and Safety	ISO 45001	Specifies requirements for an occupational health and safety management system, helping suppliers provide safe and healthy workplaces.
Information Security	ISO 27001	Specifies requirements for establishing, implementing, maintaining and continually improving an information security management system.
Laboratory Competence	ISO/IEC 17025	Specifies general requirements for the competence of testing and calibration laboratories.
Sustainability and Ethics	Intel Supplier Code of Conduct	Suppliers must adhere to Intel's code, which encompasses labor, ethics, health and safety, and environmental standards, aligning with the Responsible Business Alliance (RBA) Code of Conduct.
	Supplier Sustainability Standards	Intel has established standards focusing on sustainable conduct, requiring suppliers to implement practices that support environmental and social responsibility.
Business Continuity	Business Continuity Plan (BCP)	Suppliers must have a documented BCP to mitigate potential disruptions and ensure the continuous supply of products and services.

TSMC SUPPLIER CERTIFICATIONS

tsmc

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Demonstrates a robust quality management system. TSMC encourages suppliers to obtain this certification to ensure consistent product and service quality.
	IATF 16949	Required for suppliers involved in automotive-related processes, emphasizing defect prevention and reduction of variation and waste in the supply chain.
	IECQ QC080000	Focuses on hazardous substance process management, ensuring compliance with hazardous substance-free requirements.
Environmental Management	ISO 14001	Specifies requirements for an effective environmental management system, helping suppliers improve their environmental performance.
	ISO 14064	Pertains to greenhouse gas emissions reporting and verification, aligning with TSMC's sustainability goals.
	ISO 50001	Focuses on energy management systems, enabling suppliers to follow a systematic approach in achieving continual improvement of energy performance.
	Alliance for Water Stewardship (AWS)	Recognizes responsible water stewardship practices. TSMC has obtained AWS certification for its facilities, indicating the importance of water management in its supply chain.
Occupational Health and Safety	ISO 45001	Specifies requirements for an occupational health and safety management system, helping suppliers provide safe and healthy workplaces.
Information Security	SEMI E187	Standard for cybersecurity of fab equipment, ensuring that suppliers meet information security requirements pertinent to semiconductor manufacturing.
Sustainability and Ethics	TSMC Supplier Code of Conduct	Suppliers must adhere to TSMC's code, which encompasses labor, ethics, health and safety, and environmental standards, aligning with the Responsible Business Alliance (RBA) Code of Conduct.
	Supplier Sustainability Standards	TSMC has established standards focusing on sustainable conduct, requiring suppliers to implement practices that support environmental and social responsibility.
	Sustainability Self-Assessment Questionnaire (SAQ)	Tier 1 suppliers are required to complete the SAQ to assess sustainability risks and identify areas for improvement.
	Supplier Healthiness Assessment Rectification Program (SHARP)	TSMC conducts audits and assessments to identify risks and ensure continuous improvement in supplier sustainability practices.
Training and Development	TSMC Supplier Sustainability Academy Participation	Suppliers are encouraged to engage with TSMC's educational platform, which offers courses on sustainability, safety and ethical practices to enhance supplier capabilities.
Business Continuity	Business Continuity Plan (BCP)	Suppliers must have a documented BCP to mitigate potential disruptions and ensure the continuous supply of products and services.

SAMSUNG CERTIFICATIONS

SAMSUNG

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Samsung has implemented a robust Quality Management System (QMS) based on international standards like ISO 9001, ensuring consistent product and service quality across its operations. Suppliers are expected to align with this standard to guarantee high-quality deliverables.
	IATF 16949	For suppliers involved in automotive-related processes, compliance with IATF 16949 is required. This standard emphasizes defect prevention and reduction of variation and waste in the automotive supply chain.
Environmental Management	ISO 14001	Samsung's global manufacturing facilities are certified to ISO 14001, demonstrating a commitment to effective environmental management systems. Suppliers are encouraged to obtain this certification to improve their environmental performance.
	ISO 50001	Several of Samsung's manufacturing facilities are certified to ISO 50001, focusing on energy management systems. Suppliers are encouraged to follow a systematic approach to achieve continual improvement in energy performance.
Occupational Health and Safety	ISO 45001	Samsung's facilities are certified to ISO 45001, ensuring a safe and healthy workplace. Suppliers are expected to implement similar occupational health and safety management systems.
Information Security	ISO/IEC 27001	Samsung expects suppliers to comply with ISO/IEC 27001 standards, focusing on information security management systems pertinent to semiconductor manufacturing equipment.
Sustainability and Ethics	Samsung Supplier Code of Conduct	Suppliers must adhere to Samsung's Supplier Code of Conduct, which incorporates the Responsible Business Alliance (RBA) Code of Conduct, covering labor, ethics, health and safety, and environmental standards.
	Responsible Business Alliance (RBA) Code of Conduct	Samsung is a member of the RBA and expects its suppliers to comply with its standards, promoting ethical practices throughout the supply chain.
Training and Development	Supplier Training Programs	Samsung provides training and support to suppliers on quality standards and requirements, ensuring alignment with Samsung's expectations and continuous improvement.
Business Continuity	Business Continuity Plan (BCP)	Suppliers are required to have a documented Business Continuity Plan to mitigate potential disruptions and ensure the continuous supply of products and services.

QUALCOMM CERTIFICATIONS

CATEGORY	CERTIFICATION/ STANDARD	DETAILS
Quality Management	ISO 9001	Required for ensuring standardized and consistent quality management processes. Qualcomm expects suppliers to have this certification for product and service quality.
	IATF 16949 (if automotive related)	Required for suppliers serving the automotive semiconductor segment. Focus on defect prevention and waste reduction.
Environmental Management	ISO 14001	Required for minimizing the environmental impact of supplier operations.
	ISO 50001 (preferred)	Preferred for energy management and efficient energy usage.
Occupational Health and Safety	ISO 45001	Required for ensuring safe working conditions and occupational health and safety compliance.
Information Security	ISO 27001	Strongly encouraged due to Qualcomm's heavy focus on data protection and cybersecurity (especially in 5G/AI domains).
Sustainability and Ethics	Responsible Business Alliance (RBA) Code of Conduct	Mandatory adherence to ethical standards, including labor rights, health and safety, environment, ethics and management systems.
	Conflict Minerals Compliance (CMRT)	Required for sourcing materials responsibly and avoiding conflict minerals.
Business Continuity	Business Continuity Plan (BCP)	Required to ensure supply resilience and manage risks associated with supply chain disruptions.
Product Environmental Compliance	RoHS / REACH / Prop 65 / WEEE	Suppliers must ensure products comply with hazardous material restrictions and environmental standards.

GET INVOLVED

Technical Assistance

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TECH HUBS U.S. Economic Development Administration

SCAN

Supply Chain Activation Network

This initiative supports businesses seeking to enter, expand or strengthen their role within the semiconductor supply chain by providing direct services through a coordinated network of manufacturing extension partnerships (MEPs) and economic development organizations (EDOs).

Consult the SCAN team for consultation and assistance regarding:

- Commercial real estate and industrial site availability
- Tax incentives
- Economic gardening
- Talent attraction
- Workforce planning and training
- Regional asset promotion
- Market analysis
- Innovation services
- New business/product planning
- Strategy development
- Process improvement
- Quality management standards
- Safety analysis
- Engineering services
- Buyer/supplier roundtable opportunities

STEP UP

Semiconductor Talent and Employer Partnership Upstate New York

The NY SMART I-Corridor's employer-led STEP UP initiative is coordinating investments in training infrastructure, wraparound supports and inclusive access to high-quality manufacturing careers.

Consult the STEP UP team for consultation and assistance regarding:

- Centralized talent and workforce resources
- Workforce investment and training guidance
- Labor market insights and forecasts
- Employer support through industry partners:
  - Training program identification
  - Skill definition for new roles
  - Inclusive hiring and retention strategies
  - Pilot and scale training programs
  - Curriculum development
  - Recruitment support
  - New hire retention services
  - Funding connections
  - Ongoing technical assistance

C3

Commercialization and Collaboration Center

In partnership with Syracuse University, Cornell, RIT, the University of Rochester and the University at Buffalo, C3 connects businesses with the tools, talent and technology needed to accelerate commercialization in the semiconductor space.

Consult the C3 team for consultation and assistance regarding:

- Innovation grants and vouchers
- State-of-the-art core facilities
- Specialized equipment
- Maker and prototyping services
- Intellectual assets
- Collaborative partnerships
- Commercialization support

ACCESS THE NY TECH HUB RESOURCES AND INNOVATION VOUCHERS FOR ENTERPRISES (NY THRIVE) APPLICATION PORTAL NOW TO APPLY FOR GRANTS:

HTTPS://SYRACUSE.INFOREADY4.COM/#FREEFORMCOMPETITIONDETAIL/1971043

NY SMART I-CORRIDOR TECH HUB STRUCTURE

NY SMART I-CORRIDOR INNOVATION OFFICE

CONNECTING AND COORDINATING ACROSS THE SMART I-CORRIDOR REGION

CENTERSTATE Corporation for Economic Opportunity | CEO | ONEROC | BNP BUFFALO NIAGARA PARTNERSHIP

SCAN

SUPPLY CHAIN ACTIVATION NETWORK

EXPANDING CAPACITY OF EXISTING AND POTENTIAL SUPPLIERS THROUGH SCALING MANUFACTURING SUPPORT.

University at Buffalo School of Management

STEP UP

SEMICONDUCTOR TALENT AND EMPLOYER PARTNERSHIP

A UNIFIED FRONT DOOR FOR EMPLOYERS TO ACCESS SEMICONDUCTOR TALENT.

Monroe Community College, State University of New York

C3

COMMERCIALIZATION AND COLLABORATION CENTER

AN INNOVATION ONE-STOP SHOP TO ASSIST BUSINESSES BRINGING NEW SEMICONDUCTOR TECHNOLOGIES TO MARKET.

Syracuse University

STAY INFORMED AND CONNECT

Visit the NY SMART I-Corridor Tech Hub website to stay up to date on news and events at nysmarticorridor.com/

Share your buying needs or request additional information to get involved in the semiconductor supply chain: mgt-csca@buffalo.edu

ENDNOTES

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