

## The CHIPS Program Office Vision for Success: Two Years Later

More than two years ago, the Biden-Harris Administration and a bipartisan coalition in Congress passed the CHIPS and Science Act (CHIPS) to further a singular ambition: advancing U.S. economic and national security by revitalizing the domestic semiconductor industry. The CHIPS Program Office (CPO) was established shortly after to implement this initiative, overseeing the allocation of funds and coordination of efforts to rebuild the domestic semiconductor ecosystem while acting as good stewards of taxpayer dollars. Since then, of the \$38 billion<sup>1</sup> available to allocate, CPO has awarded roughly \$34 billion, signed preliminary terms for an additional \$2 billion, and disbursed over \$4 billion, with more negotiations ongoing—meaning nearly 95% of the funding has been allocated and about 90% has been awarded. CPO is also reviewing applications for dozens of additional projects.

These investments are delivering results:

- **CHIPS is unlocking an advanced manufacturing investment boom without modern precedent.** The United States has seen more investment in electronics manufacturing over the last four years than in the previous three decades combined. Planned investments are now nearly \$450 billion, marking the largest wave of semiconductor manufacturing expansion in U.S. history. This includes the two largest domestic investments in semiconductor manufacturing by U.S. companies in history (Intel and Micron), as well as the two largest foreign direct investments in new projects *by any company* in history (TSMC and Samsung). Overall, CHIPS funds have secured commitments to construct 17 new fabs with 6.8 million square feet in cleanroom space—equivalent to the size of about 119 football fields—as well as eight new supply chain and advanced packaging facilities. The program is also incentivizing over a dozen investments to modernize or expand existing facilities throughout the country. Perhaps most significantly, for the first time, **all five of the world’s leading-edge logic and dynamic random-access memory (DRAM) manufacturers (Intel, Micron, Samsung, SK hynix, and TSMC) are building and expanding in the United States.** By contrast, no other economy in the world has more than two of these companies manufacturing on its shores.
- **These investments are strengthening national and economic security by restoring mass production of critical semiconductor technologies to U.S. soil.** The United States is projected to produce at least 20 percent of the world’s leading-edge logic chips by 2030 (up from zero percent in 2022) and ~10% of its leading-edge DRAM chips by 2035 (also up from zero percent)—both technologies that are essential to the future of artificial intelligence (AI), high-performance compute, and advanced military systems. TSMC’s Arizona facility has already begun volume production of leading-edge chips, marking the first time in roughly a decade that a new fab is making these technologies domestically. Beyond the leading-edge, CHIPS investments are dramatically expanding domestic production of current-generation and mature-node chips—components found in cars, medical devices, critical infrastructure, and defense systems—as well as scaling capacity of compound semiconductors and other specialty chips.
- **Beyond the fabrication of semiconductors themselves, CHIPS is driving the development of an end-to-end semiconductor supply chain in the United States—**

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<sup>1</sup> The CHIPS Program Office was appropriated \$39B, of which \$38.2B is available for awards and roughly \$800M is for administration of the program.

**from raw materials to advanced packaging.** Upstream supply chain investments in companies like Hemlock and GlobalWafers are expanding the production of polysilicon and silicon wafers, creating a “quartz-to-wafer” supply chain of the essential inputs for manufacturing chips. Companies such as Entegris, Edwards Vacuum, and Corning are localizing the production of critical semiconductor manufacturing equipment and inputs. Downstream supply chain investments in companies like Amkor, SK hynix, and Intel are establishing domestic advanced packaging capabilities at an unprecedented scale in the United States, positioning the country to be at the forefront of next-generation technologies. Together, these efforts reduce reliance on vulnerable international supply chains, advance our national security, and ensure the United States retains its technological edge in a competitive global landscape.

- CHIPS investments are fueling innovation that will bring the next generation of cutting-edge semiconductor technologies to our shores.** In Oregon, Intel is on a path to become the first leading-edge manufacturer to use the world’s most advanced (“High-NA”) extreme ultraviolet lithography machines in mass chip production. In Texas, Samsung plans to build not only two leading-edge logic fabs but also a research and development (R&D) lab dedicated to developing new process nodes. In Indiana, SK hynix is partnering with Purdue University on R&D for advanced packaging necessary for the next generation of technology. Meanwhile, HP will invest in microfluidics technologies with potentially groundbreaking semiconductor implications for end-uses such as life sciences instrumentation, and Absolics will produce new glass substrates to boost the performance of AI chips. In tandem with the investments made by the [CHIPS R&D Office \(CRDO\)](#), CPO is bringing cutting-edge manufacturing back to the United States to encourage a virtuous cycle in which investment in manufacturing expertise spurs R&D and vice versa.

**Each CHIPS investment, including those finalized and in progress, reflects a steadfast commitment to protecting taxpayer dollars.** Every award the CHIPS program negotiates is designed to fill strategic gaps in the domestic semiconductor ecosystem while spending the minimum amount necessary to deliver the maximum benefit to U.S. economic and national security. On average, every dollar of CHIPS funding is catalyzing more than ten dollars of total investment, strategically leveraging public funding to drive private sector commitments and helping to ensure these investments remain sustainable in the long term. Furthermore, CPO’s taxpayer protections go beyond the initial allocation of funds: safeguards such as milestone-based funding and clawback provisions have been built into every award to ensure taxpayer dollars are disbursed as programmatic objectives are met.

**With all of this in place, the program is on track to meet the goals laid out in its Vision for Success.** Six months after the passage of the CHIPS Act, the newly formed CPO released its [Vision for Success](#), a roadmap to restore U.S. leadership in semiconductor manufacturing. The document set clear goals across four categories of production: leading-edge logic, advanced packaging, leading-edge memory, and current-generation and mature-node. A few months later, CPO followed up with a [Vision for Success](#) for semiconductor equipment and materials. Together, these documents memorialized a clear set of objectives to which the program could be held accountable and against which the program’s achievements could be measured. The semiconductor industry is among the most cyclical, competitive, and capital-intensive industries in the world, and the path forward from here will not be linear. Yet, it is clear that CHIPS has unlocked a set of investments that put the United States on track to meet the goals outlined in the Vision for Success through the end of the decade and beyond. The remainder of

this fact sheet details how the program has delivered on these objectives and lays out the critical work ahead to ensure the United States remains a global leader in semiconductor production for decades to come.

## Leading-Edge Logic

***Vision Statement:*** *The United States will have at least two new large-scale clusters of leading-edge logic fabs.*

Leading-edge logic chips are the foundation of emerging technologies, powering advancements in AI, advanced computing, and key defense systems. Before the CHIPS Act, the U.S. produced zero percent of the world's leading-edge logic chips, leaving the nation entirely dependent on foreign manufacturing concentrated in East Asia. Today, thanks to CHIPS investments, the United States is rebuilding its capacity to produce these critical semiconductors.

- **By 2030, the United States is on track to produce at least 20 percent of the world's leading-edge logic chips.** In early 2025, when TSMC begins volume production in Arizona, it will be the first time the United States has produced high volumes of leading-edge logic in nearly a decade. This marks a historic milestone for U.S. manufacturing and ensures a steady supply of chips essential for AI, advanced computing, and critical national infrastructure.
- **The United States is expected to have eight new leading-edge logic fabs by 2030.** CPO has signed awards with TSMC, Intel, and Samsung, which will together bring eight leading-edge logic production facilities to the United States by the end of the decade. This means that, by the end of the decade, the United States will have more leading-edge logic fabs than anywhere else in the world outside of Taiwan. Moreover, these facilities plan to manufacture the most advanced semiconductor technologies in the world, including Intel's 18A and 14A technologies, Samsung's 2nm technology, and TSMC's N4, N3, and N2/A16 technologies.
- **These investments are unprecedented in their scale.** Intel's \$90 billion investment before the end of the decade represents the most aggressive planned investment in semiconductor manufacturing capacity in U.S. history. TSMC's \$65 billion investment is the largest foreign direct investment in a new project *in any industry* in U.S. history—and Samsung's \$37 billion planned investment is the second largest.
- **The United States is fostering the creation of not just two, but four leading-edge logic clusters.** Located in Arizona, Ohio, Oregon, and Texas, CHIPS investments are fueling the formation of multiple large-scale production clusters that are creating ecosystems for semiconductor manufacturing up and down the supply chain and developing the skilled workforce of the future. These clusters foster collaboration, accelerate innovation, and create efficiencies that strengthen the entire ecosystem, all while positioning the United States as an economically-attractive investment for companies to continue expanding on our shores.

## Advanced Packaging

***Vision Statement:*** *The United States will be home to multiple high-volume advanced packaging facilities, and the United States will be a global technology leader in commercial-scale advanced packaging for both logic and memory chips.*

As the industry approaches the physical limits of Moore’s Law, advanced packaging technologies and heterogeneous integration offer new pathways to sustain innovation by integrating multiple chips into powerful, efficient systems. By enabling chips to work together efficiently, advanced packaging reduces energy use, boosts performance, and supports breakthroughs in cutting-edge technology, including AI, next generation communication, and high-performance computing. U.S.-based advanced packaging capacity is currently about three percent of total global capacity, meaning that the majority of chips produced domestically that require advanced packaging must be sent overseas to be packaged, creating a vulnerability in our supply chain. The CHIPS program’s targeted investments are strengthening domestic capabilities, protecting our supply chain, and ensuring the United States remains a global leader in the future of innovation.

- **By 2030, the United States is on track to have at least three high-volume advanced packaging facilities for leading-edge logic and memory.** CPO has announced awards with Amkor, Intel, and SK hynix, each of which will build major advanced packaging facilities in the United States. SK hynix will mass-produce next generation High Bandwidth Memory (HBM)—the highest performance DRAM chips, which are crucial components paired with Graphics Processing Units (GPUs) that train AI systems. Intel and Amkor will provide packaging services that integrate a range of logic and memory semiconductors. Together, these three investments totaling more than \$10 billion will seed an advanced packaging ecosystem capable of supporting AI datacenters, compute and communications infrastructure, AI-enabled PCs and smartphones, autonomous vehicles, and more.
- **The United States is pushing the frontiers of advanced packaging technology.** CHIPS is making forward-looking investments in the advanced packaging technologies and capabilities needed to meet the growing demands of advanced applications. Through CPO’s award with Absolics, for example, the United States will have an expanded supply of glass substrates for advanced packaging that reduce power consumption and system complexity, resulting in faster and more energy efficient computing. Meanwhile, SK hynix’s Indiana investment focuses both on scaling a high-volume advanced packaging facility and conducting R&D related to heterogeneous integration, memory-centric solutions, and architecture for generative AI. Looking forward, the CHIPS R&D National Advanced Packaging Manufacturing Program has announced over \$3 billion in funding to establish prototyping piloting capabilities in new materials, equipment, and design capabilities needed to commercialize future generations of advanced packaging technologies.

## Leading-Edge Memory

***Vision Statement:** U.S.-based fabs will produce high-volume leading-edge DRAM chips on economically-competitive terms.*

Leading-edge memory chips are foundational to all advanced technologies, such as datacenters, wireless communications, personal computing, automotive, and AI. Currently, all leading-edge DRAM chip manufacturing takes place in East Asia, posing a significant risk to U.S. supply chain security and resilience. Through its targeted investments, the CHIPS program is onshoring leading-edge DRAM production for the first time in decades.

- **The United States is on track to produce roughly 10 percent of the world’s leading-edge DRAM chips by 2035, up from zero percent today.** In December 2024, CPO signed an award to Micron’s investment to produce leading-edge DRAM chips across three fabs in New York and Idaho. This award is seeding Micron’s broader two-decade



vision to invest approximately \$125 billion across both states, including \$100 billion to establish a four-fab “megafab” in New York and \$25 billion for an additional fab in Idaho. Altogether, Micron’s \$125 billion investment plan will create the largest ever cleanroom space announced in the United States. These chips are core components of advanced technologies from automotive to high-performance compute, and Micron’s technology will also enable the highest-performance memory (HBM), which is critical for enabling new AI models.

- **CHIPS investments will drive cutting-edge R&D in memory technology.** Micron’s new high-volume manufacturing fab in Boise, Idaho will be co-located with the company’s R&D facility to improve efficiency across their R&D and manufacturing operations, reducing lags in technology transfer, and cutting time-to-market for leading-edge memory products. This investment will ensure that Idaho remains Micron’s global hub for memory R&D, solidifying its long-term commitment to innovation in the United States.

## Current-Generation and Mature-Node

***Vision Statement:** The United States will have increased its production for the current-generation and mature-node chips most vital to U.S. economic and national security.*

The pandemic revealed just how vulnerable the United States’ semiconductor supply chain had become. Current-generation and mature-node chips—critical to cars, household electronics, defense systems, and medical devices—were suddenly short in supply. Car factories sat idle, washing machines were unavailable, and key military systems were put at risk, underscoring the urgent need for secure and reliable domestic production of these foundational chips. CPO has awarded nearly double the target set by Congress for current-generation and mature-node chip production, reflecting the critical importance of these chips to U.S. economic and national security.

The CHIPS program is expanding domestic supply and securing U.S. technological leadership by investing in a diverse array of legacy technologies. These investments will develop new high-volume facilities, modernize existing sites, and scale emerging compound semiconductor technologies.

- **By 2030, the United States is positioned to have four new high-volume current-generation and mature-node fabrication facilities, onshoring the production of chips for state-of-the-art technologies.** Through new facilities being built by Texas Instruments (TI) and GlobalFoundries (GF), CHIPS funds will support the production of chips used in everything from industrial robots to electric vehicles to military systems. Specifically, CPO is supporting three new TI fabs, part of the company’s broader plans to bring five additional 300mm fabs online in the United States and move more than 95% of its manufacturing operations internal. Meanwhile, GF’s expansion in Malta, New York, will manufacture technologies critical to national security and includes the first greenfield construction of a current and mature node facility by a pure-play foundry in more than a generation, bringing the company’s Malta operations to commercially competitive scale.
- **The United States is modernizing its existing U.S.-based production facilities to increase capacity, improve productivity, introduce new technologies, and meet competitive global standards.** For example, GF is revitalizing its Burlington, Vermont, fab with automation and environmental upgrades to transform it into the first U.S. facility capable of producing 200mm gallium nitride on silicon (GaN-on-Si) for use in communications and electric vehicles. In Minnesota, Polar Semiconductor’s



modernization will double its production of sensor and power chips used in vehicles within two years. In Virginia, Micron will invest up to \$2 billion to bring 1-alpha DRAM technology onshore and secure domestic supply of legacy DRAM used throughout the automotive, industrial and defense markets.

***Vision Statement:*** *The United States will increase production of and maintain technology leadership in compound semiconductors and other specialty chips.*

As advancements in silicon integrated circuits have driven the information revolution and extended the reach of digital technologies, there is increasing demand for specialized capabilities, such as compound semiconductors and micro-electromechanical systems (MEMS) devices. These technologies are key components of biomedical devices, next-generation communications, automobiles and electric vehicles, and the defense industrial base. CHIPS investments are advancing domestic leadership in compound semiconductors and shoring up the domestic MEMS ecosystem by scaling production and expanding capacity.

- **CHIPS is scaling the domestic end-to-end compound semiconductor ecosystem.** Preliminary terms with Wolfspeed and Bosch propose to enable the transition to 200mm silicon carbide manufacturing, lowering costs and meeting demand for green-energy technologies. Coherent and Infinera are building the world's first two 150mm indium phosphide (InP) facilities to rapidly grow the supply of optical semiconductors needed to meet the demands of AI. The CHIPS investment in X-Fab would support expansion and modernization of their Silicon Carbide (SiC) foundry facility – the only high-volume SiC foundry in the United States. Meanwhile, GF is commercializing 200mm gallium nitride on silicon technology to improve production for radio frequency (RF) systems, lowering costs for defense and communications applications. BAE Systems is also modernizing its facilities, quadrupling production capacity for critical programs like the F-35 fighter jet.
- **The United States is on track to increase production of specialized chips for telecom, defense, automotive, and other applications.** CHIPS-funded projects are enhancing domestic production of specialized chips for communications, aerospace, biomedical, and industrial applications. Rocket Lab's high-efficiency solar cells and Rogue Valley's MEMS foundry are supporting aerospace and biomedical applications, while HP's modernized microfluidics facility is enabling new applications in drug discovery and cell development. SkyWater, a DOD trusted foundry, would increase its production capacity of 90nm and 130nm semiconductors by 30 percent, helping secure the U.S. defense supply chain. At the same time, CHIPS funds are also supporting potentially groundbreaking compound semiconductor innovations.

## Supply Chain

***Vision Statement:*** *CPO will invest to reduce chokepoint risks flowing from geographic concentration, advance U.S. technology leadership, and support vibrant fab clusters.*

The United States has grown vulnerable to risks stemming from the geographic concentration of critical suppliers, as well as from threats to supply chain security and integrity. Addressing these vulnerabilities is essential to ensuring a resilient and competitive semiconductor ecosystem. At the same time, the CHIPS program presents a unique opportunity to build on U.S. strengths in the supply chain, as a historic expansion of U.S. chipmaking capacity boosts domestic demand for semiconductor manufacturing inputs.

By investing in domestic production capacity, the CHIPS program is securing critical components of the semiconductor supply chain. CHIPS investments are creating end-to-end supply chains, and ensuring advanced technologies are brought to market in the United States and supporting vibrant fab clusters.

- **The United States is on track to secure a quartz-to-wafer supply chain.** Investments in Hemlock (ultra-high-purity polysilicon) and GlobalWafers (300mm silicon wafers) are establishing a domestic end-to-end quartz-to-wafer supply chain critical for chip production. Hemlock, the largest U.S. producer of polysilicon, is dramatically expanding its production capacity while meeting the quality demands of leading-edge chip production. GlobalWafers' investment represents the first 300mm silicon wafer manufacturing facility in U.S. history, marking a major milestone in reducing our dependence on foreign wafer suppliers.
- **The United States is driving innovation in fab equipment technologies.** Entegris is expanding domestic production of advanced semiconductor wafer carriers (known as Front Opening Unified Pods or “FOUPs”) and liquid filtration products, while Edwards Vacuum is building next-generation vacuum pumps for semiconductor tools in localized U.S. supply chains. Meanwhile, Corning is scaling the manufacturing of EUV glass and pioneering new technologies to enable next-generation lithography.
- **The United States is creating vibrant fab clusters.** Already, investments in new fabs are onshoring the upstream supply chain in CHIPS-funded regions. For example, TSMC's expansion in Arizona has already catalyzed investments from 14 direct suppliers that plan to construct or expand plants in Arizona or other parts of the United States, further strengthening U.S. domestic supply chain resilience.
- **Future investments from CPO's second funding opportunity will further secure upstream supplier production in chemicals, gases and critical inputs used in domestic facilities.** CPO is currently reviewing 50 applications submitted for this funding opportunity, accounting for nearly \$6 billion in capital expenditures, and expects to invest \$500 million in dozens of smaller supply chain projects to support domestic semiconductor manufacturing in 2025.

## Next Steps

CPO has made substantial progress, but the work is far from over. The semiconductor industry is one of the most volatile, competitive, and expensive in the world, and this undertaking brings with it risks inherent to any program of this magnitude. Not every project will succeed, some will change significantly, and the path forward will not always be linear. Yet, CPO has been designed to navigate challenges through rigorous due diligence, milestone-based disbursements, and stringent taxpayer protections. While uncertainties are inevitable in an industry as dynamic and complex as the semiconductor industry, CPO remains focused on creating the conditions for long-term success. Over the coming year, the office will transition to portfolio management—while maintaining the program's focus on both protecting taxpayer investments and advancing U.S. economic and national security. Building on ongoing efforts, this work will involve:

- **Managing milestone-based disbursements.** CPO will monitor its awards to ensure companies are building on schedule; meeting operational, workforce, and other commitments; complying with national security guardrails; and delivering on strategic objectives. Funds will be released as companies achieve key milestones.



- **Adapting to changes in the industry.** CPO will respond nimbly to industry cycles and evolving competitive dynamics, adapting project timelines and milestones as necessary to adjust to an ever-evolving industry while continuing to protect taxpayer dollars.
- **Addressing workforce development needs.** CPO is investing an unprecedented sum of nearly \$300 million in workforce development as part of CHIPS for America's (encompasses CPO and CRDO) overall investment of nearly \$600 million. CPO will continue to partner with states and local entities—as well as other stakeholders such as academia, workforce development and training providers, labor unions, and others—to ensure the workforce is evolving to meet industry needs and respond to real-time workforce challenges, while also working closely with the National Semiconductor Technology Center's Workforce Center of Excellence to identify and share best practices across the industry.
- **Continuing to invest in strengthening the semiconductor ecosystem.** CPO will continue to invest in the domestic production of chips, critical materials inputs, equipment, and subsystems to advance U.S. economic and national security. These efforts will be sustained over the coming months and will ensure the long-term growth and global competitiveness of the U.S. semiconductor industry.
- **Partnering with stakeholders to reduce time-to-build.** CPO will continue to work with federal, state, and local authorities to efficiently manage and execute permitting and environmental review while also keeping projects safe, environmentally responsible, and compliant with federal and state laws.
- **Building a resilient global ecosystem.** Policymakers should continue to work with allies and partners to strengthen cross-border supply chains, promote knowledge exchange and collaborative R&D, and enforce national security guardrails.
- **Maintaining a whole-of-government effort to promote a thriving domestic semiconductor ecosystem and protect U.S. national security.** The CHIPS for America program is just one tool in a broader policy approach to strengthen domestic semiconductor manufacturing, fuel R&D, and drive U.S. leadership semiconductor innovation. CPO will continue to coordinate closely with other key federal partners implementing the vision of CHIPS, including the Department of Defense, the National Science Foundation, the State Department, and the Department of Energy. Policymakers should continue to drive demand for chips produced in U.S. and allied ecosystems and bolster all segments of the supply chain, including through the use of federal budgetary and procurement tools. Policymakers should also continue to respond to the People's Republic of China's rapid and aggressive buildout of semiconductor manufacturing capacity—including both legacy chip capacity and upstream market segments like SiC wafer production—which threatens to undercut U.S. investments. At the same time, as the United States promotes a vibrant domestic semiconductor ecosystem, policymakers should continue to protect national security through export controls that maintain U.S. and allied leadership in artificial intelligence, and safeguard critical technologies and prevent their misuse by adversaries.

The CHIPS for America Program has spurred a once-in-a-generation transformation, catalyzing historic investments that have reshaped the trajectory of semiconductor manufacturing in the United States. These investments have positioned the United States to lead in an industry foundational to our national security and to every element of modern life. As a result, we are





transitioning from a position of dependency to one of strength—laying the groundwork for a more secure and prosperous future.

*Please see the [appendix](#) for a list of CPO awards and PMTs.*