U.S. Department of Commerce, National Institute of Standards and Technology (NIST), CHIPS Research and Development Office (CRDO) Broad Agency Announcement (BAA)

2025-NIST-CHIPS-CRDO-01

Funding Opportunity Description:	NIST is soliciting proposals from eligible applicants for research, prototyping, and commercial solutions that advance microelectronics technology in the U.S., as well as proposals from eligible applicants in which a U.S. Government investment would support innovations that advance the U.S. semiconductor ecosystem and further national and economic security, to be considered for funding by the CHIPS Research and Development Office (CRDO).
Announcement Type:	Amendment
Funding Instrument:	This funding opportunity will result in the award of other transaction agreements, in accordance with 15 U.S.C. § 4659(a)(1).
Assistance Listing (CFDA Number):	11.042: CHIPS R&D
Period of Performance:	The expected period of performance is five (5) years.
Goals & Objectives:	To grow U.S. leadership in semiconductor technology and accelerate the pace of commercialization to enable technology

	dominance in the industries of the future, in areas including advanced microelectronics research and development with a nexus to Artificial Intelligence (AI), Quantum Technology, Biotechnology, Biomanufacturing, Commercialization of Innovation, and/or Standards Development.
Eligible Applicants:	Eligible applicants are for-profit organizations; non-profit organizations; accredited institutions of higher education; Federally Funded Research and Development Centers (FFRDCs), and Federal entities (e.g., Federal departments and agencies – see Section III.3). Eligible applicants must be a domestic entity. Individuals and unincorporated sole proprietors are not eligible to receive funding under this BAA. Eligible subawardees include all eligible applicants as well as foreign partners not otherwise prohibited (e.g., foreign adversaries), subject to compliance with specific requirements (see Section VI). CRDO strongly recommends that Federal entities and FFRDCs seeking to respond to this BAA as an applicant first contact the CRDO POC to discuss eligibility; in areas of mutual interest, alternative funding mechanisms may be pursued independent of this BAA.
Funding Amount	The number of awards is contingent upon the availability of funds and the submission of a sufficient number of meritorious proposals. Project budgets should be at least $10 million and need to reflect the actual needs of the proposed project. All funding considerations are based on the availability of funds.
Cost Share/Matching Requirements:	Cost sharing, as defined in 2 CFR § 200.1, is not required for all awards made under this BAA. However, CRDO may choose to fund only a portion of a project's total costs, contingent on the recipient demonstrating it has access to sufficient funding to complete the project.
Return on Investment:	As a condition of receiving an award, applicants may be required to issue to the Department equity, warrants, licenses to intellectual property, royalties or revenue sharing, or other such instruments to ensure a return on investment to the Government.
Submission Dates and Times:	Applications will be accepted and considered on a rolling basis as they are received. Applications will be accepted until September 15, 2026, at which time the BAA will temporarily close due to system upgrades at NIST. The BAA is expected to reopen with updated submission instructions in November 2026, at

	which time Applications will be accepted through September 30, 2029, unless this BAA is amended to add an earlier closing date.
How to Apply:	Applications must be submitted using www.grants.gov. Paper applications will not be accepted.
Review and Selection Process:	See Section V in the Full Announcement Text of this BAA.
Informational Webinar:	CRDO will host an informational webinar to provide general information regarding this BAA, offer general guidance on preparing White Papers and if invited, Pre-negotiation Packages, and answer questions submitted in advance. Proprietary technical discussions about specific project ideas will not be permitted during the webinar. However, questions about this funding opportunity, eligibility requirements, evaluation and award criteria, selection process, and the general characteristics of a meritorious application will be addressed during the webinar and by e-mail for inquiries sent to research@chips.gov with "2025-NIST-CHIPS-CRDO-01 Questions" in the subject line. There is no cost to attend the webinar, but participants must register in advance. Participation in the webinar is not required and will not be considered in the review and selection process described in Section V of this BAA. Additional information can be found at http://www.nist.gov/chips/crdo-broad-agency-announcement-baa as it becomes available.

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Special Notes:

1. **Updates and Amendments.** Applicants are encouraged to frequently check the application package, available at www.grants.gov under Funding Opportunity Number 2025-NIST-CHIPS-CRDO-01, and the NIST website at www.chips.gov, for updates and amendments to this BAA. Special Notices issued against this BAA will be posted to www.grants.gov.

FULL ANNOUNCEMENT TEXT

I. Program Description

The United States is in a battle for global leadership in the critical and emerging technologies (CETs) that will drive decades of national and economic security and prosperity. To ensure U.S. global dominance in the industries of the future, we seek to advance the President's stated agenda to secure the U.S. position as the unrivaled world leader in CETs. As the nation's premier laboratory with the mission to promote U.S. innovation and industrial competitiveness, NIST is poised to work with industry at every step to support U.S. manufacturing and technological capacity in CETs.

The statutory authority for the CRDO BAA is 15 U.S.C. §§ 272(b) and (c), 15 U.S.C. § 4656, and Title II, Division B, the Research and Development, Competition, and Innovation Act (Pub. L. 117-167).

As authorized by 15 U.S.C. § 4656 and in alignment with the NIST Strategy for American Technology Leadership in the 21st Century, the following are general topic areas that have been identified as priority areas for proposals under this BAA.

1. **Semiconductors**. Proposed projects may include conducting research and prototyping of advanced semiconductor technologies and growing the domestic semiconductor workforce, to strengthen the economic competitiveness and security of the domestic supply chain, overcome R&D ecosystem gaps, and develop innovative advanced packaging manufacturing technologies, including but not limited to:

    a. Semiconductor advanced test, assembly, and packaging capability in the domestic ecosystem.

    b. Materials characterization, instrumentation, and testing for next generation microelectronics.

    c. Virtualization and automation of maintenance of semiconductor machinery.

    d. Metrology for security and supply chain verification.

    Example technical areas of interest include but are not limited to:

    - Next generation lithography beyond 1nm: next generation materials and approaches.
    - Semiconductor devices: next generation materials, process tools/flows, devices and architectures that may include digital, analog, mixed signal, power, radio-frequency, optoelectronic, sensors, or other.

- Next generation memory devices: next generation materials, architectures, and interfaces.
- Advanced Packaging: heterogeneous integration and 3D packaging, chiplets, 3D stacking, novel memory architectures, 2.5D packaging, integrated photonic packages, ultrahigh density interposers, and next generation assembly and systems packaging.
- Next generation design: design and system level co-optimization, AI-enabled devices through system designs, advanced design automation
- Accelerating domestic manufacturing fabs: robotics, automation, digital twins, AI-enabled manufacturing, national security manufacturing, and securing critical supply chains.

2. **Application of Artificial Intelligence (AI) for advanced microelectronics research and development**. Proposed projects may include the development and adoption of AI-driven autonomous agents, AI-based agents for cybersecurity, and consistency in AI system performance measurement. General applications of AI technologies not directly related to advanced microelectronics research and development are not within the scope of this BAA.

   Example technical areas of interest for the demonstration of AI using semiconductors include, but are not limited to:

   - Compute efficiency
   - Novel memory stacks
   - Cryogenic operations
   - AI at edge
   - Stacked machine health monitoring
   - AI devices for extreme environments
   - Using AI to accelerate domestic manufacturing fabs to secure critical supply chains

3. **Application of quantum technology for advanced microelectronics research and development**. Proposed projects may include research and prototyping of advanced semiconductor technology for quantum technology, manufacturing of quantum sensors, scalable high-performance quantum components, and development of quantum networks.

Example technical areas of interest for the demonstration of quantum technology using semiconductors include, but are not limited to:

- Scalable quantum computing
- Quantum networks and communications
- Quantum sensing and metrology
- Accelerating domestic manufacturing fabs: scale domestic production of quantum hardware, domestic buildout of cryogenic, optical, and ultra-high vacuum manufacturing lines, national security manufacturing, secure critical supply chains

4. **Application of biotechnology and biomanufacturing technology for advanced microelectronics research and development**. Proposed projects may include adoption of emerging biotechnologies, development of biomanufactured products, and creation of AI-enhanced biotechnology solutions.

   Example technical areas of interest for the demonstration of biotechnology and biomanufacturing using semiconductors include, but are not limited to:

   - Bioelectronics
   - Medical implantable devices
   - Accelerating domestic bio-electronics manufacturing fabs: scale domestic production, national security manufacturing, secure critical supply chains

5. **Commercialization of innovations**. Proposed projects may include the adoption and commercialization of federally funded scientific discoveries and technology advancements.

   Examples within commercialization of innovation using semiconductors include but are not limited to advanced testing, assembly, and packaging capability that involve eligible participants, that may include Manufacturing USA institutes (established and operated consistent with the requirements of 15 U.S.C. § 278s(e), as amended) or other consortiums to adopt and commercialize innovations.

6. **Standards Development.** Proposed projects may include promoting U.S. engagement and leadership in international standards for CETs and development of science-based standards.

   Example standards development areas of interest include:

   - Quantum manufacturing standards
   - Data standards

- Design standards
- Provenance and security standards

Investment Fund. The BAA is amended to permit CRDO, through the Investment Fund, to make awards that are investments in companies, rather than specific research and development projects. The objective is to invest in companies that conduct research and prototyping activities, with the goal of eventually commercializing products and services that strengthen the economic competitiveness and security of the domestic semiconductor ecosystem and supply chain.

Entities interested in Investment Fund awards must apply through the BAA. Only entities that have applied to the BAA will be eligible to be routed, at CRDO's discretion, for consideration by the Investment Fund (the Investment Fund Path). Entities that have already applied to the BAA may be considered by CRDO for the Investment Fund Path without having to reapply.

II. Federal Award Information

1. **Funding Instrument.** Awards under the BAA will take the form of other transaction (OT) agreements. Each OT Agreement is negotiated with the applicant and details the agreed-upon terms and conditions for that award.
2. **Multi-Phase Funding Policy.** When an application for a multi-phase award is approved, funding will be provided only for the first phase of the project; additional phases may be funded incrementally. Funding for subsequent phases of a project will be contingent upon satisfactory performance as determined by CRDO, continued relevance to the mission, goals, and priorities of CRDO, and the availability of funds.
3. **Funding Availability.** The number of awards is contingent upon the availability of funds and the submission of a sufficient number of meritorious proposals. Project budgets should be at least $10 million and need to reflect the actual needs of the proposed project. All funding considerations are based on the availability of funds.
4. **Cost Sharing or Matching.** Cost sharing, as defined in 2 CFR § 200.1, is not required for all awards in this program. However, CRDO may choose to fund only a portion of a project's total costs, contingent on the recipient demonstrating it has access to sufficient funding to complete the project.
5. **Return on Investment.** As a condition of receiving an award, applicants may be required to issue to the Department equity, warrants, licenses to intellectual property, royalties or revenue sharing, or other such instruments as may be required to ensure a return on investment to the Government.

III. Eligibility Information

1. **Eligible Applicants.** Eligible applicants are for-profit organizations; non-profit organizations; accredited institutions of higher education; Federally Funded Research and Development Centers (FFRDCs), and Federal entities (e.g., Federal departments and agencies). Eligible applicants must be a domestic entity.[1] Individuals and unincorporated sole proprietors are not eligible applicants.

2. **Eligible Subawardees.** Eligible subawardees include all eligible applicants as well as foreign partners not otherwise prohibited (e.g., foreign adversaries[2]), subject to compliance with specific requirements (see Section VI). Eligible subawardees may participate in multiple applications. Vendors selling goods or services in the ordinary course of business are not considered subawardees.

3. **Federal Entities and FFRDCs.** Federal entities and FFRDCs may only participate to the extent allowed by law and subject to applicable direct competition requirements. Applications involving such entities must clearly demonstrate that (1) the proposed work does not compete with the private sector, and (2) provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to receive Federal award funds. CRDO strongly recommends that Federal entities and FFRDCs seeking to respond to this BAA as an applicant first contact the CRDO POC to discuss eligibility; in areas of mutual interest, alternative funding mechanisms may be pursued independent of this BAA.

IV. Submission Information

There are two paths by which CRDO may issue an award pursuant to this BAA: (1) the Research and Development (R&D) Project Path and (2) the Investment Fund Path. For each path, submission to this BAA is in two parts: a required White Paper and, if invited to proceed, an Investment Fund Application or a Pre-negotiation Package. More information regarding submission instructions and requirements can be found at www.nist.gov/chips/submission-instructions-and-package-requirements.

[1] For the purposes of this BAA, a domestic entity is an entity (a) organized under the laws of the United States or any jurisdiction within the United States and (b) having a principal place of business in the United States. The principal place of business generally means the place where an entity's officers direct, control, and coordinate the entity's activities. A foreign adversary cannot be considered a domestic entity.

[2] Foreign adversaries include any "foreign entity of concern" and "foreign country of concern," as those terms are defined in 15 U.S.C. § 4651(7)-(8) and 15 C.F.R. §§ 231.102 and 231.104, as well as any entity whose actions, policies, or personnel decisions are controlled by a "foreign entity of concern" or "foreign country of concern."

1. **White Paper.** White Papers are required for both the R&D Project Path and the Investment Fund Path. White Papers may be submitted at any time via grants.gov. CRDO will review White Paper submissions as soon as practicable after they are submitted. An initial review of White Papers will be conducted for eligibility, completeness, and responsiveness. White Papers deemed ineligible, incomplete, or nonresponsive will receive no further consideration.

   For the R&D Project Path, White Papers deemed eligible, complete, and responsive will be reviewed for (1) scientific and technical merit and (2) the potential contribution to national and economic security. White Papers with insufficient scientific and technical merit and/or relevance to national and economic security will not receive further review and will not be invited to submit a Pre-negotiation Package. However, CRDO may also provide technical feedback and request resubmission of White Papers.

   For the Investment Fund Path, CRDO, at its discretion, will determine whether an application should be considered for the R&D Project Path or the Investment Fund Path. CRDO will evaluate a White Paper's potential for investment and contribution to national and economic security. Applicants selected by CRDO for the Investment Fund Path will be invited to submit an Investment Fund Application. Applicants not selected by CRDO for the Investment Fund Path will continue to be evaluated through the R&D Project Path. CRDO may provide feedback to the applicant and request resubmission of White Papers.

2. **R&D Project Path Pre-negotiation Package.** Applicants whose White Papers are determined to have sufficient scientific and technical merit and potential contributions to national and economic security will be invited to submit a Pre-negotiation Package, which will include a detailed technical and cost proposal, and other required documents.

   Pre-negotiation Packages may only be submitted by entities that are invited to do so by CRDO. Pre-negotiation Packages submitted in the absence of a specific invitation will not be reviewed or evaluated in any way.

   Pre-negotiation Packages will undergo prioritization for evaluation. CRDO will give the greatest weight to the first factor in this review.

   - Contribution to economic and national security, consistent with relevant strategic goals in published Administration strategies and policies and the evaluation criteria.
   - Whether the project duplicates other projects funded by the Department or other Federal agencies.
   - Efficient use of taxpayer dollars and sufficient return to the taxpayer.

3. **Investment Fund Path Application**. Applicants whom CRDO determines, based upon the White Paper, are better suited for the Investment Fund Path will be invited to submit an Investment Fund Application, which will include:

    - Company Description, including a description of the Applicant's existing businesses and strategy;
    - Applicant Background, including an organizational structure chart and the identity of directors, officers, and major shareholders;
    - Relevance to National and Economic Security, including a narrative of how the proposed investment would further U.S. economic and national security goals;
    - Financial Plan, including historical financial statements, cash flow projections, and the sources and uses of funds for any significant projects (as applicable); and
    - Foreign Ownership, including a description of any ultimate beneficial owner that is not a U.S. person, and any connections to foreign entities of concern or foreign countries of concern.

    Investment Fund Applications may only be submitted by entities that are invited to do so by CRDO. Investment Fund Applications submitted in the absence of a specific invitation will not be reviewed or evaluated in any way.

4. **Submission Method.** White Papers, Investment Fund Applications, and Pre-negotiation Packages must be submitted electronically at www.grants.gov, under announcement 2025-NIST-CHIPS-CRDO-01; paper, email, fax, or other submission methods will not be accepted.

    Applicant organizations may submit more than one White Paper, provided that each White Paper represents a technically distinct project. CRDO will not accept duplicate or overlapping White Papers from a single organization (normally identified by having a separate Unique Entity Identifier in SAM.gov).

V. Submission Review Information

More information regarding evaluation criteria and the review process can be found at www.nist.gov/chips/submission-instructions-and-package-requirements.

1. **R&D Project Path Evaluation Criteria.** The evaluation criteria that will be used in evaluating White Papers and Pre-negotiation Packages submitted under this BAA are as follows:

    a. **National and Economic Security.** The extent to which an application furthers economic and national security by advancing technology leadership

in the United States, strengthening the supply chain for domestic semiconductor manufacturing, accelerating the pace of innovation, and growing the semiconductor workforce.

b. **Scientific and Technical Merit.** The extent to which the proposed technical approach is innovative, feasible, achievable, and complete. This includes the extent to which the task descriptions and associated technical elements are comprehensive and presented in a logical sequence with all proposed deliverables clearly defined, resulting in a clear picture of how an award will achieve the desired goal(s).

c. **Project Feasibility.** The degree to which the project plan is feasible to execute, including: the extent to which the applicant and key partners have the necessary experience and plans to complete and operate the project; the extent to which the proposed costs are realistic for the technical and management approach; and the likelihood and extent to which the project could mitigate any technical and operational risk.

d. **Commercial Viability.** The completeness, coherence, and viability of the plan to transition project technology from research and development to commercialization, including evidence of a market environment, demand for the project's output, and a suitable return on investment.

e. **Financial Viability.** The extent of the applicant and project's financial viability, including the comprehensiveness and reasonableness of the projected capital expenditures, the applicant's overall financial health, and the specificity, credibility, and viability of the applicant's capital raising plan (as applicable).

2. **Investment Fund Path Evaluation Criteria.** CRDO, at its discretion, will determine whether an application should be considered for the Investment Fund Path. In making that determination, CRDO will consider:

a. Whether a direct investment in the applicant or funding a specific R&D project would be more effective in spurring innovation in the semiconductor ecosystem;
b. Whether the desired R&D outcomes would benefit from direct CRDO involvement in the proposed project;
c. Whether a direct investment in the applicant or funding a specific R&D project is more likely to provide a positive return on investment for the Government; and

d. Whether and how the investment will support collaborations between startups, academia, established companies, or new ventures.

CRDO will review Investment Fund Applications to determine appropriate sizing and scoping of the proposed investment. CRDO will conduct business, technical, and national security diligence on each applicant consistent with standards and practices used by sophisticated private sector investors. In determining whether to issue an investment award, and on what terms, CRDO will consider:

a. The extent to which the investment will contribute to national and economic security;
b. The extent to which the investment will contribute to innovation in the domestic semiconductor ecosystem; and
c. The likelihood that the investment will result in a positive return on investment for the Department.

3. **Anticipated Announcement and Award Dates.** Awards will be made on a rolling basis as Investment Fund Applications and Pre-negotiation Packages are received and evaluated, and terms of the other transaction agreements are finalized.
4. **Retention of Unsuccessful Applications.** Copies of each unsuccessful application will be retained in accordance with the Records Schedule DAA-0167-2023-0001.

VI. Administrative and National Policy Requirements

The terms and conditions of each OT Agreement will be set forth in the agreement negotiated between the NIST and the recipient. OT Agreements will include terms and conditions based on administrative and national policy requirements, including those summarized below. More information regarding administrative and national policy requirements can be found at www.nist.gov/chips/administrative-and-national-policy-requirements.

1. **Intellectual Property (IP) and Domestic Production.** As set forth in 15 U.S.C. § 4656(g), the Department of Commerce must "develop policies to require domestic production, to the extent possible, for any intellectual property" resulting from R&D conducted using Federal funds awarded under this BAA. Further, 15 U.S.C. § 4656(g) requires CRDO to develop domestic control requirements to protect any such IP (which may include software) from foreign adversaries. To ensure compliance with these requirements of 15 U.S.C. § 4656(g), CRDO will include award terms and

conditions related to domestic control and domestic production of Federally-funded intellectual property, among other terms. For awards issued pursuant to the R&D Project Path, CRDO will also require applicants to provide a Commercial Viability and Domestic Production Plan describing potential pathways to transition CHIPS-funded innovations to commercial viability and domestic production.

2. **Investment and Research Security.** Awards issued pursuant to the R&D Project Path are subject to multiple statutes and directives requiring protection of Federally-funded intellectual property, including:

    - National Security Presidential Memorandum-33 (NSPM-33) and 42 U.S.C. § 6605 requires participants in the Federal R&D enterprise to periodically disclose information related to potential conflicts of interest and commitment, including monetary and non-monetary research support
    - 42 U.S.C. §§ 19231 – 19237 prohibit certain research participants from participating in malign foreign talent recruitment programs

    To ensure compliance with these requirements, NIST reserves the right to request additional information to assess any identified risks to the protection of Federally-funded intellectual property or to develop and require risk mitigation strategies.

3. **Reporting.** Each recipient will be required to submit financial, performance, and/or technical reports. Detailed reporting requirements will be outlined in the terms and conditions of the award.

4. **Foreign Entities of Concern.** 15 U.S.C. § 4657 prohibits Federal funds awarded under this BAA from being provided to a foreign entity of concern.

VII. Federal Awarding Agency Contacts

Questions should be directed to the following contacts:

Subject Area	Point of Contact
Programmatic, Technical, and Administrative Questions	CHIPS Research and Development Office E-mail: research@chips.gov with "2025-NIST-CHIPS-CRDO-01 Questions" in the subject line
Technical Assistance with Grants.gov Submissions	Grants.gov Phone: 800-518-4726 E-mail: support@grants.gov