

# ICSerbia White Paper

## Executive Summary

ICSerbia is an initiative dedicated to jumpstarting and sustaining the integrated circuit (IC) design industry in Serbia. Its mission is to build a robust network of Serbian IC engineers, fostering collaboration within the country and with professionals abroad. ICSerbia aims to promote investment in Serbia's IC sector, strengthen and expand IC education, and better coordinate efforts across academia and industry. By connecting fragmented initiatives and offering a centralized platform for resources and collaboration, ICSerbia seeks to make Serbia a meaningful participant in the global semiconductor ecosystem. Ultimately, the goal is to create a sustainable technical community and a support system for Serbian IC professionals, academics, and students, while paving the way for Serbia to host a strategic fragment of the global IC supply chain through design.

## Problem Statement

The global semiconductor industry is a cornerstone of modern innovation, underpinning everything from consumer electronics to defense systems. As countries around the world race to expand their domestic IC design capacity, Serbia remains notably underdeveloped in this sector.

Integrated circuit design is notoriously capital-intensive, requiring access to fabrication, software licenses, and specialized talent. While several Serbian companies are involved in ASIC development, there is no coordinated IC design community, no structured educational incentives for students, and limited national infrastructure to support design-focused innovation.

This lack of coordination is further compounded by fragmentation between academia, industry, and the Serbian diaspora. Students interested in IC design, particularly in analog domains, often face limited resources and professional isolation. This lack of support reflects a broader issue within Serbia's STEM ecosystem, where engineering and technical students frequently encounter limited pathways for advancement. As a result, many pursue opportunities abroad, contributing to the ongoing brain drain in science and engineering fields.

Despite these challenges, Serbian engineers and academics in the diaspora have played notable roles in shaping the global IC design landscape. Their contributions in both industry and research are significant, but remain disconnected from efforts within Serbia.

Meanwhile, the global IC design environment is evolving. The United States no longer holds a monopoly on design leadership; countries like China, Italy, and Vietnam are rapidly increasing

their IC output, with China now producing the largest number of IC-related publications. IC design is becoming a saturated field globally, with the spotlight shifting to breakthroughs in manufacturing, advanced materials, and system integration.

However, a critical window of opportunity is opening: open-source IC (OSIC) design tools and affordable tapeout programs are lowering the barrier to entry for new players. What once required millions of dollars in tools and fabrication can now be accessed by student teams and startups. This democratization creates a unique opportunity for countries like Serbia to re-enter the IC space through design, but it requires coordination, community, and vision.

## Mission & Objectives

Our mission is to build a global network and platform connecting Serbian IC designers, both in Serbia and across the diaspora. We aim to foster collaboration among students, professionals, researchers, companies, and academic institutions within Serbia, while also strengthening ties with the international IC design community.

ICSerbia supports the use and promotion of OSIC tools, working to make them more accessible to our members. We strive to connect people, encourage knowledge exchange, and facilitate meaningful partnerships within the chip design ecosystem.

We are committed to advancing IC education in Serbia through both conventional and alternative methods, including workshops, mentorship, and hands-on learning. In parallel, we aim to cultivate a culture of innovation by supporting early-stage projects, startups, and grassroots engineering initiatives that emerge from the IC design space.

By promoting talent, collaboration, and investment, our goal is to increase the visibility, coordination, and global recognition of Serbia's growing role in the semiconductor industry.

## Who We Serve

We support students and early-career engineers in Serbia, as well as Serbian students abroad who are interested in chip design. Our network also includes experienced Serbian IC professionals, both in the region and across the diaspora.

We engage professors and researchers in electrical engineering departments, IC-related companies operating in Serbia and the broader region, and international organizations that promote IC design technologies. In addition, we support initiatives aimed at improving OSIC

tools and expanding the OSIC ecosystem.

## Key Activities

ICSerbia will focus on a set of foundational activities that are realistic, impactful, and scalable over time. These activities center on building and maintaining an online platform and community hub to serve as the primary point of connection for members. The platform will host and share relevant events, including webinars and online talks, and feature a regular digest highlighting important IC industry news, community achievements, OSIC tool updates, and educational opportunities.

A core objective is to curate and expand a resource hub containing open-source IC tool documentation, design workflows, and project examples. To increase accessibility, ICSerbia will also develop translated and localized technical materials tailored for students and educators in Serbia. In addition, the initiative will provide basic guidance for students and early teams interested in participating in open-source tapeouts. An academic engagement toolkit will be created to help university faculty introduce IC design topics and OSIC tools into their curricula, encouraging broader participation in the field.

## Technical & Educational Priorities

ICSerbia places its primary technical focus on analog integrated circuit design, broadly defined to include power management, mixed-signal, and radio-frequency design. While digital design remains an area of interest, analog serves as the core emphasis due to its complexity, depth, and importance to both education and industry. OSIC design flows are central to our approach, offering low-cost and accessible pathways for custom silicon development.

Educationally, ICSerbia aims to support the integration of IC design into university courses, self-driven learning, and extracurricular initiatives across Serbia. We promote the use of open-source tools in education and seek to provide localized or translated technical resources to make learning more accessible.

We believe that individuals across the educational and professional pipeline, from beginners to advanced designers, have the potential to meaningfully contribute to IC design, creation, and even research. As fabrication becomes increasingly affordable, smaller and simpler designs are now viable for tapeout, opening the door for a broader community to participate in silicon development.

## Community & Network Vision

ICSerbia aims to cultivate a strong, connected community that spans students, professionals, academics, and organizations involved in integrated circuit design. We will actively build partnerships with student groups, university faculty, and diaspora-led initiatives to expand our reach and encourage cross-border collaboration.

Knowledge sharing will be a central part of our efforts, with opportunities for members to engage through collaborative projects, shared resources, and community discussions. Achievements and contributions from Serbian designers, researchers, and students will be highlighted to inspire and recognize progress within the field.

To support visibility, ICSerbia will maintain a growing collection of notable academic and industry contributions related to Serbian IC design. This will include spotlights on university research labs, company initiatives, and individual efforts that demonstrate Serbia's presence in the global IC space.

Additionally, we will help connect Serbian students and early-career engineers with international programs such as summer schools, fellowships, and open-source tapeout initiatives. A shared collaboration space will also be developed to promote open design projects, calls for contributors, and ideas from across the community.

## Innovation & Academic Potential

ICSerbia seeks to support the long-term development of innovation, entrepreneurship, and academic growth within the Serbian integrated circuit ecosystem. By promoting access to tools, knowledge, and collaboration, ICSerbia can help stimulate the formation of local startups focused on IC design, as well as small businesses specializing in areas such as design consulting, verification, and technical training.

Through its network, ICSerbia also aims to increase the visibility and export of Serbian IC talent and services, positioning engineers to participate in global projects and opportunities. At the same time, by helping to create a more vibrant and connected design environment within Serbia, the initiative can contribute to retaining talented engineers who might otherwise seek opportunities abroad. Academic institutions, student groups, and independent designers alike stand to benefit from the growing support network and knowledge base that ICSerbia will provide.

## Sustainability & Growth

ICSerbia is designed to operate as a lean, professional organization with a structure that allows for sustainable growth without reliance on heavy infrastructure or funding. The initiative will be built around freely available or low-cost platforms to coordinate communication, share resources, and manage activities efficiently. Growth will follow a gradual rollout model, beginning with core offerings such as the online resource hub and digest, and expanding based on interest, capacity, and community engagement.

The organization will rely on voluntary contributions from professionals, academics, and diaspora members who are aligned with its mission. While funding is not immediately necessary, ICSerbia remains open to sponsorships from industry partners, diaspora-backed companies, and tool providers. It also plans to explore academic collaborations and targeted grants to support specific initiatives such as translations, tapeouts, or educational events.

In the long term, ICSerbia will consider formalizing its structure through legal registration as a nonprofit or association. Institutional partnerships with universities, research centers, and relevant organizations will be pursued to ensure long-term stability and impact.

## Call To Action

ICSerbia welcomes all individuals and organizations who share a vision for strengthening Serbia's role in the global integrated circuit design ecosystem. Whether you are a student, engineer, researcher, professor, or industry professional, in Serbia or abroad, there is a place for you in this growing network.

We are actively seeking mentors, collaborators, technical contributors, translators, and educators who can help expand access to knowledge, support others in their development, and build a sustainable design culture. Those interested in contributing to content development, resource curation, or future initiatives are encouraged to reach out.

To get involved, learn more, or stay connected, please visit our website and sign up through our contact or interest form. Together, we can shape a stronger, more connected future for Serbian IC design.