



## **NEWS ANNOUNCEMENT**

**FOR IMMEDIATE RELEASE**

### **First Google-Sponsored MPW Shuttle Launched at SkyWater with 40 Open Source Community Submitted Designs**

***Collaboration among SkyWater, Efabless and Google enables industry's first open source ASICs***

**BLOOMINGTON, Minn. and SAN JOSE, Calif. – April 6, 2021 –** [SkyWater Technology](#), the trusted technology realization partner, and [Efabless](#), a crowdsourcing design platform for custom silicon, today announced the first tapeout in a series of Google-sponsored open source multi-project wafer (MPW) shuttles, managed by Efabless and manufactured at SkyWater. In this partnership, open source designs were selected to be fabricated at no cost to designers. The design submission process was open for 30 days, generating 1700 downloads in the first two weeks and filling all 40 available slots. Additional designs will be accommodated starting in the next MPW shuttle run which is anticipated in mid-2021. The designs utilize SkyWater's 130nm open process design kit which has been made publicly available.

The program illustrates the potential of applying open source to all levels of IC design to improve access to resources such as design tools, IP, and foundry process design kits (PDKs) that can be shared by a larger pool of individuals with specialized skill sets. To enable wider engagement from the community, Efabless has developed [Caravel](#), a carrier RISC-V based System on Chip that includes all the housekeeping functions that support users' designs and acts as a standard test harness. This further reduces barriers to design, prototyping and verification. Every project owner will receive four development boards with their design plus additional parts for other uses.

The Open MPW Shuttle Program attracted designers from both academia and commercial organizations. Approximately 60% of the designs were submitted by software, FPGA and hardware developers (non-IC experts) — demonstrating a significant untapped underlying interest generated by putting IC design in the hands of users. By enabling open source design, the program also illustrates the diversity and creativity of designs that could be generated. Examples of submitted designs include:

- OpenPOWER SoC
- 5 RISC-V SoCs
- Crypto-currency Miner
- Robotic App Processor
- Amateur Satellite Radio Transceiver
- Analog/RF
- 4 eFPGAs

Generated IP will be accessible by all open source designers going forward on the 130 nm mixed-signal process (SKY130) at SkyWater. Designers will be able to utilize the Efabless platform to prototype these designs, derivatives of these designs, and new designs that combine the open source designs with proprietary IP from traditional providers.

The [SKY130 process](#), a mixed-signal CMOS technology, offers many normally optional features as standard — features like the local interconnect, SONOS non-volatile memory functionality, MiM capacitors and more. This provides the designer with a wide range of flexibility in design choices. Professors from several universities including Stanford, UC Berkeley, Purdue University, and the American University in Cairo have used the SKY130 process as a base technology for academic projects.

John Kent, SkyWater executive vice president of technology development and design enablement said, “With design tools and open source design IP, engineers from around the world are collaborating and creating new content while accessing design and fabrication resources in a revolutionary way. Engineers are refining and adding content to the body of knowledge on a continuous basis. This is both an industry first and a significant step forward in design enablement.”

“We have seen fantastic community engagement with almost 1100 members,” said Mohamed Kassem, Efabless chief technology officer and co-founder. “On this first MPW, this project empowered and enabled dozens of new designers to bring their ideas to silicon. This was achieved by focusing on their new designs which were later integrated in our standard harness SoC, Caravel. We just taped-out the first shuttle and we are looking forward to silicon validation.”

#### **About the Google-sponsored MPW Shuttle Program**

The open source foundry PDK is accessible at <https://github.com/google/skywater-pdk>. The window for submitting designs for the next shuttle in this series is planned for mid-2021. More details about the design submission process and requirements can be found by visiting:

- [https://efabless.com/open\\_mpw\\_shuttle\\_project\\_mpw\\_one](https://efabless.com/open_mpw_shuttle_project_mpw_one)
- <https://www.skywatertechnology.com/mpw/open-source-mpw-program/>

To learn more about the SKY130 PDK open source foundry offering, please visit <https://skywater-pdk.slack.com/> or contact [swfoundry@skywatertechnology.com](mailto:swfoundry@skywatertechnology.com).

#### **About Efabless Corporation**

[Efabless.com](https://efabless.com) offers a platform and marketplace that uses open source and community models to make the design and commercialization of ICs simple, inexpensive and accessible to everyone. Efabless accelerates the development of new products and initial proof of concepts through a novel solution based on configurable open source SoC design templates and automated design generation. Product developers use this solution to rapidly, cost-effectively and reliably create custom silicon. Chip developers use the solution to dramatically reduce cost and time to market for proof of concept of new and exciting ICs. The Efabless model is extendible to advanced packaging, software, subsystems and full systems. Efabless is headquartered in San Jose, California. For more information, visit [www.efabless.com](https://www.efabless.com).

**About SkyWater Technology**

SkyWater is the only U.S.-owned and U.S.-based pure play semiconductor foundry and is a DOD-accredited Trusted supplier, specializing in custom technology development services, volume manufacturing, and advanced packaging capabilities.

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