



The Monthly Newsletter of the InnovateFPGA Design Contest

We invite you to develop solutions that will have a real-world impact based on Intel's Edge-centric FPGAs.

Enter the Design Contest today!

Team projects will focus on the sustainability theme and deliver benefits to environmental issues such as water conservation, optimizing energy usage, limiting waste, and making intelligent use of the planet's resources.

If this seems interesting to you, and maybe you've got a great idea, go to www.lnnovateFPGA.com now to enter the competition.









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Contest Theme: Connecting the Edge for a Sustainable Future

Our world is facing challenges unlike any we have seen before. We are in the era of distributed intelligence, where computing is pervasive. With all these connected devices and the resulting increase in data, there will be global implications to energy and resource use, as well environmental impact.

The InnovateFPGA design contest was developed to inspire engineers to design, create, and innovate with FPGAs. This edition of the design contest will invite teams to develop solutions that will have a real-world environmental impact.

Intel is raising the bar for itself and evolving its corporate responsibility strategy to increase the scale of our work with others. We are creating a more responsible, inclusive, and sustainable world, enabled through technology and our collective actions. Today, we are applying our resources to deliver on our bold goals. And we're not doing it alone; Microsoft and Analog Devices have joined forces with Intel and Terasic to create a complete contest platform that can connect sensors and other devices via the flexibility of an Intel® Cyclone® V SoC FPGA to Microsoft Azure IoT and AI services.

Teams from across the world will compete for a spot in the Grand Final, where they will be able to demonstrate their creativity with ingenious solutions to some of the world's most challenging problems. This contest is an opportunity for Intel, Microsoft, Analog Devices and Terasic to invest in the design community from students in University, to makers, and professional engineers. Each team chosen will receive a no-cost development kit and design tools to help them showcase their creativity and ingenuity.

- Register your team and submit your project ideas by October 1st, 2021 to claim your free development kit from Intel, Microsoft, and Analog Devices.
- Cash prizes will be awarded to the regional and grand final contest winners.
- Winners of the Regional Finals (March 2022) will have their travel, meals, and lodging expenses paid to attend the Grand Final event on June 23, 2022 in San Jose, California.









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Here at Intel, we are inspired to drive innovation that enriches the lives of every person on earth, and we are excited to collaborate with Terasic, Microsoft, ADI and other companies to enable solutions that address global challenges using FPGA technology. I am excited to see the innovation that will come forth through the InnovateFPGA Design Contest.

 Patrick Dorsey, VP and GM of FPGA Product Group, Intel Programmable Solutions Group



Microsoft Azure is thrilled to be a key supporter of this unique, global development competition. With edge and cloud computing coming closer together connecting the physical and digital worlds, and when combined with AI and machine learning, the possibilities are endless! We can't wait to see what innovative solutions the competitor teams come up with to help reduce climate impact, drive sustainability, and enable others to do the same around the world.

Welcome and best of luck!

- Justin Slade, Director, Azure IoT Marketing



Imagining a Sustainable Future

How key players in the electronics industry are changing their businesses

Dialogue versus Action. Talking versus Doing. We aren't referring to a movie or television script. Instead, we are referring to how businesses are transforming in order to infuse corporate responsibility into the very structure of their companies.

InnovateFPGA This vear's Contest will allow a direct connection between corporate sustainability initiatives and real-world Edge and Cloud connected solutions. Sustainability covers a broad range of markets and use-cases. Some of the areas for sustainabilitythemed solution development are Smart City, Food or Water related, Autonomous Vehicles, Transportation. Data management, Health, Industrial, and Marine related (see page 3 for actual Intel FPGA-based solution in action). To help prospective teams think about potential contest ideas, here are some examples of sustainable solutions.

Smart City: The City of Chicago has implemented a system which allows them to save approximately \$10 million per year by reducing their overall use of electricity and maintenance costs using smart public lighting systems.

Food related: From farm to kitchen, IoT applications can help reduce food waste across the food chain. Sensors used to monitor the cold chain, from field to supermarket, can ensure that food maintains a certain temperature, thus guaranteeing that products remain food safe and fresh longer, reducing food waste.

Water Related: Many homes and commercial building landscapes are still watered manually or on a set schedule. This is an inexact method of watering, which does not consider weather, soil moistness, or the water levels needed by the plant. Using a smart IoT water management solution, landscape irrigation can be reduced, saving water, and improving landscape health.

Autonomous Vehicles: Edge computing architecture makes it possible for autonomous vehicles to collect, process, and share data between vehicles and to broader networks in real time with almost no latency. Combined with a network of edge data centers geographically (continued on Page 3)

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Imagining a Sustainable Future

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positioned to collect and relay critical data to municipalities, emergency response services, and auto manufacturers, edge-enabled vehicles will offer higher reliability without crippling network infrastructures.

Transportation: Having a connected public mass transit system can significantly reduce wait time and accelerate city-wide travel. Some examples of improved public bus services: fleet tracking, fare collection, live video monitoring, vehicle telematics, video analytics and facial recognition.

Other (reducing energy consumption):

Moving computing to the edge could help optimize energy usage by reducing the amount of data traversing the network. By running the applications at the user edge, data can be stored and processed close to the end user and their devices instead of relying on centralized data centers that are often hundreds of miles away. This will lead to lower latency for the end user and could lead to a significant reduction in energy consumption.

Marine related: Ocean health is key to worldwide ecosystems. There is a huge need for sustainable marine use, including solutions to monitor waterways and marine life, enable remote diagnostics, decrease cost of equipment, enforce environmental regulations, etc.

Check out this real-world solution using Intel products, including Intel® FPGAs:

<u>Using Artificial Intelligence to</u>
<u>Save Coral Reefs</u>

To read more about corporate responsibility programs and initiatives for these companies, check out these links:

Intel corporate responsibility details:

https://www.intel.com/content/www/us/en/corporate-responsibility/corporate-responsibility.html

Microsoft corporate responsibility details: https://www.microsoft.com/en-us/corporate-responsibility.

Analog Devices corporate responsibility details:

https://www.analog.com/en/company/corp orate-social-responsibility/our-impact.html



HEAD OF WHAT'S POSSIBLE™

ADI and Intel share a vision for how technology can enrich the lives of every person on the planet, and we're proud to support the engineers of the future via InnovateFPGA.

- Anelise Sacks, Senior VP, Chief Customer Officer of Analog Devices.



Terasic is dedicated in providing engineers of the future the opportunities to share their visions and innovations and demonstrate their FPGA development skills on an international stage.

Continued from the success we had with previous InnovateAsia design contests, where we see many innovative inventions, there should be no doubt that we will see more brilliant works from 2021 InnovateFPGA Design Contest.

- Sean Peng, CEO of Terasic.

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Professional Support

Contest organizer Terasic will answer questions and provide technical support for contestants / developers. Stay tuned for more 'how to' details in upcoming newsletters. Go to URL to submit questions:

https://www.innovatefpga com/portal/support.html



Key Dates

Contest Launch: July 1, 2021

The Design Contest launches on July 1. Register as a developer. Each entry will receive a confirmation email and a unique team ID upon registration.

Proposal Submission: Aug. 1 - Sept. 30, 2021

Registered developers can start to submit project proposal during this period. Final proposals need to be received by September 30.

Proposal Selection: October 15, 2021

The InnovateFPGA Judging Committee and community will select regional teams based on the submitted design proposals. These teams will each receive an Intel FPGA Cloud Connectivity Kit to begin developing the proposed project, turning them into real designs. Shipping will start on October 16.

Develop Designs Oct. 16, 2021 - Feb. 7, 2022

Teams develop the projects using provided resources and upload completed design paper and project video before the deadline.

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