# FutureHorizons
## The Global Semiconductor Industry Analysts

# FH MONDAY

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### MLPerf Launches TinyML Benchmark for Smallest AI Systems

MLCommons, the industry consortium behind the MLPerf benchmark suite for machine learning (ML) systems, has launched a performance benchmark designed for TinyML systems.

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### Renesas Sensor Platform Unlocks Personalized Air Quality Experiences

Renesas Electronics Corp. has expanded its ZMOD4510 Outdoor Air Quality (OAQ) gas sensor platform with an IP67-qualifed waterproof package and a new AI-based algorithm that enables ultra-low power selective ozone measurements.

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### Airtel and Tata Group to Collaborate on 'Made in India'

Bharti Airtel and Tata Group are partnering to implement 5G networks solutions for India. Tata Group has developed a state-of -the -art O-RAN based Radio & NSA/SA Core and has integrated a totally indigenous telecom stack, leveraging the Group capabilities and that of its partners. This will be available for commercial development starting January 2022.

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## TALK TO US

### Lattice Delivers Advanced System Bandwidth, Memory Capabilities to Edge Applications

Lattice Semiconductor Corp.'s Lattice CertusPro-NX general purpose FPGA family—the fourth device family based on the Lattice Nexus platform to be launched in just 18 months—continues Lattice's commitment to FPGA innovation with leadership in power efficiency, the highest bandwidth in the smallest form factor in comparison to similar devices, ….

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-November 2021– London UK

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### GlobalFoundries Expands Manufacturing to Singapore

Globalfoundries is expanding its overseas chip manufacturing with the construction of a new $4 billion facility in Singapore in partnership with the Singapore Economic Development Board and investments from unidentified customers.

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## MLPerf Launches TinyML Benchmark for Smallest AI Systems

MLCommons, the industry consortium behind the MLPerf benchmark suite for machine learning (ML) systems, has launched a performance benchmark designed for TinyML systems. The consortium also released the first round of scores submitted for the newly created MLPerf Tiny Inference benchmark.

MLPerf already offers benchmarks for HPC, data center and mobile-scale systems. The new benchmark is for TinyML systems – those that process machine learning workloads in extremely resource-constrained environments.

"[The MLPerf Tiny Inference benchmark] completes the microwatts to megawatts spectrum of machine learning," said David Kanter, Executive Director of MLCommons. "If you look at some of our training and HPC benchmarks, the HPC benchmark is running on 16,000 nodes on the world's largest supercomputer. On the tiny side, it's about how do we measure performance for the smallest and lowest power devices out there."

## Renesas Sensor Platform Unlocks Personalized Air Quality Experiences

Renesas Electronics Corp. has expanded its ZMOD4510 Outdoor Air Quality (OAQ) gas sensor platform with an IP67-qualifed waterproof package and a new AI-based algorithm that enables ultra-low power selective ozone measurements. The enhanced ZMOD4510 is the industry's first fully calibrated, miniature digital OAQ sensor solution with selective ozone measurement capabilities, offering visibility into the air quality in users' immediate environments for a personalized experience.

Ozone gas is a significant cause of poor outdoor air quality that poses health risks. Based on Renesas' new ultra-low power firmware, the enhanced ZMOD4510 can detect specific ozone levels—without reporting on other pollutants—while maintaining power consumption under 200μW. This selective measurement capability allows devices such as smart watches, phones, and smoke detectors to monitor for harmful ozone gasses typically found outdoors but which can drift indoors through open windows and doors. Optimizing the ZMOD4510 for very low power is key to enabling the longer life cycles required for these types of battery-powered devices.

## Airtel and Tata Group to Collaborate on 'Made in India' 5G

Bharti Airtel and Tata Group are partnering to implement 5G networks solutions for India. Tata Group has developed a state-of -the -art O-RAN based Radio & NSA/SA Core and has integrated a totally indigenous telecom stack, leveraging the Group capabilities and that of its partners. This will be available for commercial development starting January 2022.

Tata Consultancy Services (TCS) brings its global system integration expertise and helps align the end-to-end solution to both 3GPP and O-RAN standards, as the network and equipment are increasingly embedded into software.

Airtel will pilot and deploy this indigenous solution as part of its 5G rollout plans in India and start the pilot in January 2022, as per the guidelines formulated by the Government of India.

## Lattice Delivers Advanced System Bandwidth, Memory Capabilities to Edge Applications

Lattice Semiconductor Corp.'s Lattice CertusPro-NX general purpose FPGA family—the fourth device family based on the Lattice Nexus platform to be launched in just 18 months—continues Lattice's commitment to FPGA innovation with leadership in power efficiency, the highest bandwidth in the smallest form factor in comparison to similar devices, and as the only FPGAs in their class with support for LPDDR4 external memory. With advanced performance capabilities and the highest logic density currently available on a Nexus-based device, CertusPro-NX FPGAs are designed to accelerate application development for the communications, compute, industrial, automotive, and consumer markets.

"Many Edge devices require low power consumption for better thermal management, high system bandwidth for fast chip-to-chip communication, components with small form factors for compact device designs, robust memory resources to support data processing, and high reliability for mission-critical applications," said Linley Gwennap, Principal Analyst at The Linley Group. "Lattice's CertusPro-NX FPGAs address all of these factors; in particular, they far exceed the competition in mean time between failures (MTBF) and offer the lowest power in their class."

## GlobalFoundries Expands Manufacturing to Singapore

Globalfoundries is expanding its overseas chip manufacturing with the construction of a new $4 billion facility in Singapore in partnership with the Singapore Economic Development Board and investments from unidentified customers.

Demand for chips is growing at an unprecedented rate, with worldwide revenue projected to more than double in the next eight years.