



# TRULY INNOVATIVE ELECTRONICS

## INNOVATION UPDATES

Amongst numerous press releases of new products received by us, these are the ones we found worthy of the title *Truly Innovative Electronics*

### First 77GHz beamforming chip for autonomous vehicles

The SPEKTRA from Metawave is the first 77GHz beamforming chip in the front-end antenna in package (AiP) module. The AiP module can enable



accurate, long-distance detection of vehicles beyond 300 metres and pedestrians detection beyond 200 metres. The beamforming chip offers high resolution and a large field of view in a small package. Moreover, the SPEKTRA can be used in all weather conditions, making it suitable for use in autonomous ground and aerial mobility. It integrates analogue and digital MIMO signal processing, which allows distinguishing objects that are close to each other even in the difficult driving scenario and requires lower processing power than all-digital radar and lidars, thus enabling the radar processing to be done at the edge.

Metawave

<https://www.metawave.com>

### Smallest image sensor for eye and face tracking

OG0TB from Omnivision is the world's smallest image sensor launched for face and eye tracking. The ready-to-go image sensor features a 3-layer BSI global shutter sensor that can enable designers to develop more compact and power-efficient devices for use in AR/VR/MR and Metaverse applications. The sensor comes in a compact package measuring

just 1.64mm × 1.64mm and features a 2.2µm pixel in a 1/14.46-inch optical format. The sensor consumes less



than 7.2mW at 30 frames per second. For connectivity, the OG0TB supports flexible interfaces, including MIPI with multi-drop, CPHY, SPI, etc. The Omni-Vision sensor is suitable for designing compact, lightweight, battery-efficient devices such as smart glasses.

Omnivision

<https://www.ovt.com>

### Smallest DSP for 100Gbps coherent transmission

The Steelerton DSP from II-VI Inc. is a digital signal processor (DSP) which enables 100Gbps coherent transmission in optical access networks. It is the industry's first DSP in a pluggable



QSFP28 form factor. The Steelerton DSP is less than one-fifth the size and consumes less than half the power of any other 100Gbps coherent DSP and has an ultra-low power dissipation of 2W. It will enable designers to make a low-cost, power-efficient, and compact transceiver for optical access networks. This innovative module can enable wide-scale deployment of full C-band tunable coherent transceivers into QSFP28 ports.

II-VI Incorporated

<https://ii-vi.com>

### First purpose-built MLSoC for computer vision applications

The MLSoC chip from SiMa.ai is a purpose-built machine learning (ML) system on chip (SoC) suitable for use in a computer vision application. It is



the industry's first purpose-built SoC for ML application. The software-centric MLSoC platform can enable quick ML integration

for embedded edge applications. The MLSoC is a power-efficient SoC which delivers the most efficient frames per second/watt. The SoC offers 50 TOPS in a 5W envelope and comes with a dedicated computer vision coprocessor. The MLSoC platform is suitable for use in a wide variety of applications, including robotics, smart vision, autonomous vehicles, drones, etc.

SiMa.ai

<https://sima.ai>

### AI processor for intelligent applications at the edge

The Kinara Ara-1 Edge AI processor delivers a balance between computing performance and power efficiency for intelligent applications at the edge. The Ara-1 Edge processor is suitable for



applications that require flexibility and scalability and demand low latency, such as cameras and multi-chip edge servers. The Ara

Edge AI processors can effectively run multiple models without incurring any switch-time performance penalties, gen-

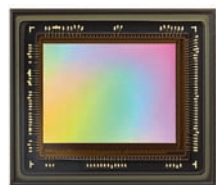


erating low latency results with higher accuracy. This device can enable engineers to build smaller and cost-effective products without compromising on computing power. Compared to other GPUs the Kinara processor offers better performance/watt, making it suitable for a wide variety of applications, such as in smart retail, smart cities, automotive, and Industry 4.0.

*Kinara*  
<https://kinara.ai>

## Sensor for machine vision applications

Prophesee's third-generation Metavision sensor is suitable for machine vision applications. It offers a throughput of more than 1000 objects/second with a power consumption of 3nW/s.



The sensor has a capturing rate equivalent to 10k frames per second and the ability to capture images in a dark environ-

ment. These features make the sensor suitable for use in applications such as ultra-high-speed counting, vibration measurement, and kinematic monitoring. Each individual pixel in a Metavision sensor embeds its own intelligence processing, enabling them to activate themselves independently for triggering events. The sensor comes in a package measuring just 13mm x15mm and captures an image with a resolution of 640x480 pixels. It can enable designers to build a highly efficient machine vision product.

*Prophesee*  
<https://www.prophesee.ai>

## High-efficiency synchronous buck converter

SZPL3002A from Silanna Semiconductor is the world's first buck converter IC with a built-in USB PD/FC port controller to feature intelligent, adaptive power sharing. The IC comes in a compact QFN package measuring just 5mm x 5mm. The SZPL3002A has an efficiency of over 98% and offers one fully programmable contract set

plus four pre-programmed sets that are chosen with an external resistor value. The IC also features protection features,



such as power throttling at elevated temperatures. The high-efficiency synchronous buck converter can reduce component count in the circuit and simplifies power-sharing design in multi-port fast chargers.

*Silanna Semiconductor*  
<https://silanna.com>

## SoC for ultra-low-power IoT devices

SiWx917 system-on-chip (SoC) from Silicon Labs is designed to create ultra-low-power IoT devices. The SoC can deliver more compute, enable faster AI/ML, and have higher security in a single compact package.



The SiWx917 is powered by an ARM Cortex M4 processor with FPU application MCU up to 180MHz. The

SoC is suitable for designing low-power IoT wireless devices using Wi-Fi 6 plus, Bluetooth Low Energy (LE) 5.1, Matter, and IP networking for secure cloud connectivity. The SoC can help developers simplify their designs by reducing development costs, and size, thus reducing the time to market. It supports OFDMA, MU-MIMO, BSS colouring, etc, which allows for faster, more stable network coverage even in crowded areas. The SoC can also be used for applications such as battery-powered locks, asset trackers, and health and fitness monitors.

*Silicon Labs*  
<https://www.silabs.com>

## Wi-Fi SoC for ultra-low-power IoT applications

The UBI206 chip can bring Wi-Fi connectivity to your IoT solution while consuming battery equivalent to a BLE chip. Ubilite's UBI206 platform is based on the UBI206 system-on-chip (SoC). It is a highly integrated product that integrates communication, power manage-

ment unit, memory, and processor in a single module. It can enable engineers to create products with Wi-Fi connectivity while having higher battery life than other similar products. The UBI206 platform reduces the BoM cost and simplifies designing an IoT system, therefore reducing the time to market. The UBI206 platform is suitable for ultra-low-power IoT markets, including healthcare, wearables, trackers, and industrial systems monitoring and control.

*Ubilite*  
<https://www.ubilite.com>



## Batteryless module with multiprotocol connectivity

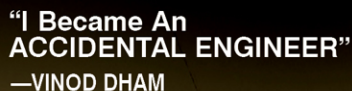
TLRS8273-M-EH from Telink is a multiprotocol connectivity module with an in-built energy harvesting capability. The innovative component integrates all the essential components that are required to design a batteryless remote.



It is based on a 48MHz RISC microcontroller that supports Bluetooth 5.1 LE, 802.15.4 (Zigbee/Rf4CE/6LoWPAN/Thread) and 2.4GHz proprietary protocols. With its combined wireless connectivity and energy harvesting on a compact footprint, it makes batteryless operations possible for a wide range of IoT applications. It also offers maximum power point tracking, which can enhance the harvesting capability of the module. The module has 32 GPIOs and features SPI, I2C, USB 2.0, Swire, etc for communication. It also has six channels of differential PWM and an IR transmitter with DMA. It can be used in various IoT applications, including wearables, electronic shelf labels, and remotes.

*Telink*  
<https://www.telink-semi.com>





**“OEMs should treat EMS as their in-house team, not vendors”**  
—V. BALASUBRAMANI



**₹ 100**

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FOR YOU

# 3D PRINTING A GAME CHANGER

## MUST READS...

- CAN EARTHQUAKES, TSUNAMIS, AND VOLCANO ERUPTIONS BE PREDICTED WELL IN ADVANCE NOW?
- WHAT THE US CHIPS ACT MEANS FOR INDIA?
- WHY DO WE NEED METAL 3D PRINTERS?
- WHAT NOT TO MISS WHILE DEVELOPING WEARABLE TECH
- DIY: HOW TO USE YOUR PHONE AS A THERMAL CAMERA
- DIY: A FUTURISTIC WEARABLE HEALTH MONITORING RING



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