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TALK TO US

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Trident 4 Comes with Open-Source Network Language

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Leading defense contractor Raytheon and aerospace behemoth United Technologies have agreed to an all-stock merger of equals, a move that will make the combined company the third largest aerospace and defense (A&D) company in the world after Boeing and Airbus. The combination will be dubbed Raytheon Technologies Corp.

"The combination of United Technologies and Raytheon will define the future of aerospace and defense," said Greg Hayes, United Technologies Chairman and CEO in a written statement. "By joining forces, we will have unsurpassed technology and expanded R&D capabilities that will allow us to invest through business cycles and address our customers' highest priorities. Merging our portfolios will also deliver cost and revenue synergies that will create long-term value for our customers and shareowners."

Atom Power Preps Digital Circuit Breakers

Ryan Kennedy is a few months away from shipping products sparked by an arc flash that he saw on a construction site more than 20 years ago. His startup, Atom Power, has a digital circuit breaker now in pilot tests and a second generation based on a custom module coming this summer.

The designs have attracted investments from giants ABB, Eaton, and Siemens, at least one of which interested in licensing the technology. So the startup must decide soon whether it will be a product or licensing company.

"This year is our inflection point because we're in discussions with a couple of companies about what licensing looks like," said Kennedy, the startup's chief executive.

3D-Printed Semiconductor Cube Could Convert Waste Heat To Electricity

From his office at Swansea University in the United Kingdom, associate professor Matthew Carnie has a good view of Tata Steel's furnace stacks. To some, those chimneys rising over Port Talbot are unsightly. To Carnie, they're an opportunity. They emit a good portion of the plant's waste heat, which overall has the same power output as some nuclear plants, says Carnie—around 1,300 megawatts, according to his calculations.

With that much potential power waiting to be captured, Carnie and his research team have developed a hybrid, 3D-printed semiconductor material that converts waste heat into electricity. It's 50 percent more efficient than another inexpensive semiconductor material, lead telluride, that's screen-printed, and the new material could be assembled cheaply into a device that converts up to 10 percent of heat wherever it's applied.

AI to Reshape the Semiconductor Industry

Jean-Marie Brunet, senior director of Marketing at Mentor, a Siemens Business, served as moderator for a well-attended and lively DVCon U.S. panel discussion on the hot topics of Artificial Intelligence (AI) and Machine Learning (ML).

The hour-long session featured panelists Raymond Nijssen, vice president and chief technologist at Achronix; Rob Aitken, fellow and director of technology from Arm; Alex Starr, senior fellow at AMD; Ty Garibay, Mythic's vice president of hardware engineering; and Saad Godil, director of Applied Deep Learning Research at Nvidia.

What follows is based on the panel transcript. It covers Brunet's first question about how AI is reshaping the semiconductor industry, specifically chip design verification and panelists' impressions.

Trident 4 Comes with Open-Source Network Language

Broadcom is sampling its first 7-nm network switch chip. In tandem with the Trident 4, the company released as open-source a new network programming language in an effort to stave off competition from startup Barefoot Network's P4.

The Trident 4 family, which spans switches with 2- to 128-terabits-per-second aggregate bandwidth, is aimed at business networks that need a variety of management features. The 21 billion transistor chip packs up to 256 50G PAM4 SerDes and manages up to 5 billion packets per second in a single chassis.

So far, Broadcom continues to dominate silicon for network switching, despite efforts of at least three startups who entered the field in the last few years. Barefoot has captured some design wins, thanks in part to rising interest in software-defined networks, but systems using its first-generation 16-nm Tofino chips are just now starting to ship