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FH MONDAY

Supercapacitor Market Gets a Jolt

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Arm Targets Computational Storage

Targeting next-generation enterprise and computational storage solutions, Arm has announced its highest performance Cortex-R processor, the Cortex-R82, featuring 64-bit support and Linux capability, and addressing up to 1TB of DRAM. The company said the processor is appropriate for solid-state drives (SSDs), hard-disk drives (HDDs) and built-in storage solutions.

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TALK TO US

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Kneron's Next-Gen AI SoC Processes Video and Audio at the Edge

Kneron, the San Diego- and Taiwan-based AI silicon and IP startup, has launched an AI SoC which features an updated version of the company's neural processing unit (NPU) IP. The KL720 also features a Cadence DSP AI co-processor and an Arm Cortex M4 core for system control.

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Supercapacitor Market Gets a Jolt

Supercapacitors are on a path to overtake batteries, providing safety, faster charging and size advantages while helping to eliminate complex battery management systems in a range of automotive, grid and IT applications.

Particularly bullish on the emerging energy storage and charging technology is IDTechX, which predicts supercapacitors will eventually "usurp" current battery technologies like lithium-ion. It sees about 80 supercapacitor manufacturers emerging over the next two decades with cars, buses, Maglev trains and a range of other use cases emerging as electric motors replace internal combustion engines.

With a growing roster of electric vehicle companies, China is seen leading the way with an estimated 30 supercapacitor manufacturers emerging by 2041.

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The course, "RVfpga: Understanding Computer Architecture", includes teaching materials and practical exercises and is available to universities worldwide. Eighteen organizations, including Western Digital, Xilinx, Digilent, RISC-V International, and Chips Alliance are supporting the development of the teaching course.

Academic partners Associate Professor Sarah Harris and Associate Professor Daniel Chaver, helped create the course which includes an instructor's guide, a student manual, 10 comprehensive labs (hands-on experiments), test materials, sample exam questions, and all the associated IP and software. The course is based on the Western Digital RISC-V SweRV core on Xilinx FPGAs.

Arm Targets Computational Storage With 64-bit Processor Running Linux

Targeting next-generation enterprise and computational storage solutions, Arm has announced its highest performance Cortex-R processor, the Cortex-R82, featuring 64-bit support and Linux capability, and addressing up to 1TB of DRAM. The company said the processor is appropriate for solid-state drives (SSDs), hard-disk drives (HDDs) and built-in storage solutions.

Real-time embedded systems such as SSDs have historically required less then 4GB of DRAM and addressable space and have not needed to run Linux. With continually increasing storage capacities and performance requirements saturating throughput of storage host interfaces, the 4GB limit and inability to run Linux are adding complexity, and in some cases, becoming barriers.

Synopsys And Nestwave Develop Geolocation IP For IoT Modems

Synopsys and Nestwave have developed a complete low-power global navigation satellite systems (GNSS) solution for integrating accurate geolocation functionality into battery-operated internet of things (IoT) modems, without the need for an additional dedicated GNSS chip. The solution is based on Nestwave's geolocation IP incorporating Synopsys' IoT communications IP subsystem with integrated ARC EM9D processor IP.

The ARC IoT communications IP subsystem is an integrated hardware and software solution that combines Synopsys' DSP-enhanced ARC EM9D processor, hardware accelerators, dedicated peripherals, and RF interface to deliver efficient DSP performance for ultra-low bandwidth IoT applications. Nestwave's GNSS solution takes advantage of the ARC EM9D processor's efficient DSP capabilities and ability to add dedicated hardware accelerators or custom instructions using APEX technology to reduce frequency requirements, giving customers additional performance bandwidth. The ARC EM9D processor is supported by the MetaWare toolkit, which includes a rich library of DSP functions, allowing software engineers to rapidly implement algorithms from standard DSP building blocks.

Kneron's Next-Gen AI SoC Processes Video and Audio at the Edge

Kneron, the San Diego- and Taiwan-based AI silicon and IP startup, has launched an AI SoC which features an updated version of the company's neural processing unit (NPU) IP. The KL720 also features a Cadence DSP AI co-processor and an Arm Cortex M4 core for system control. While Kneron's next-gen AI SoC is aimed at low-power edge and smart home devices such as video doorbells and robot vacuum cleaners, the KL720 "can be used in everything from a Tesla to a toaster," according the company.

Kneron claims this second-generation chip outperforms chips from both Intel's Movidius line and Google's Coral Edge TPU in terms of energy efficiency. The KL720's NPU block can perform 1.4 TOPS while the whole SoC, including the additional DSP and Cortex M4 cores, comes in at 0.9 TOPS/W. This is sufficient for processing 4K resolution images and videos up to Full HD 1080p resolution. This compares favorably to Kneron's previous generation chip, KL520 which was released in May 2019, which could achieve 0.3 TOPS at 0.6 TOPS/W.