Embedded Computing Design
Webinar Titles & Abstracts

AI/Machine Learning Series

CPUs vs. GPUs vs. NPUs for AI (April 8th at 2pm ET)

Processors for AI applications are coming out of the woodwork, and it's hard to decipher which is best fort your application, as there are many factors involved. Are you processing at the Edge or in the Cloud? Is low power near the top of the priority list? Do you need full-blown AI, or just a subset? Knowing the answers to these questions will get you started, and our expects in this session will help guide you down the right path.

ML for Industrial Applications (June 4th at 2pm ET)

Industrial applications typically don't require all the bells and whistles of full-blown AI. Machine learning is usually what's warranted. In this session, you'll learn how to implement machine learning, pulling in just the data that's needed for your industry equipment.

AI Development Frameworks (July 8th at 2pm ET)

Most of the AI offerings come with their own set of development tools. Some are open source, and some aren't. More importantly, some are easy to use and others aren't. In this session, we'll walk through the basics of these toolsets, showing how involved (and complex) this process needs to be based on your application.

AI in the Cloud (August 19th at 2pm ET)

While most developers want to do their processing at the Edge, sometimes it's just not possible because of the amount of data and complexity of calculations. Hence, a Cloud solution is required. In this session, we'll look at the Cloud solution from both perspectives—designing a Cloud-based system that can serve highly complex applications, and the systems that feed into the Cloud.

AI at the Edge (October 21st at 2pm ET)

Developing a system that deploys Edge-based AI is the goal for most developers (as opposed to Cloud-based AI), for a host of reasons. It removes latencies associated with sending data off-prem; it increases security because your data always remains on-prem; and it lets you control the complete design and implementation/deployment of the platform. Our experts in this session will show you how to do that and more.

Developing with ROS (or Not) (December 9th at 2pm ET)

The Robot Operating System (ROS) is a collection of open-source software tools and libraries that helps developers create and reuse code for robotics applications. The influx of AI adds a layer of complexity to the ROS but makes it even more valuable if implemented correctly. Our experts in this session will explain when and where ROS should be deployed, and show what other options are available and where they make more sense.

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HPC/Data Center Series

Thermal Management and Cooling Efficiency (May 21st at 11am ET)

High-performance servers, networking equipment, and storage systems generate substantial heat, which must be efficiently managed to prevent overheating and ensure long-term reliability. Various solutions are available, from traditional fans and liquid coolants, to optimizing the power to reduce the heat. In this webinar, we will look at what techniques are available to the designer, and when and where they should be applied.

Power Distribution and Energy Efficiency (June 24th at 11am ET)

Data centers consume massive amounts of energy, and the computers driving them must operate efficiently while managing power distribution at scale. Power outages or inefficiencies can cause disruptions and increase operational costs. Designing high-efficiency power supplies, incorporating power redundancy, and supporting dynamic scaling are some of the techniques at an engineer's disposal. We will look at these and other methods that can be deployed.

Scalability and Modularity (July 15th at 11am ET)

In today's quickly changing times, data centers must have the ability to scale quickly to accommodate growing workloads. Oftentimes, products need to be upgraded, replaced, or reconfigured without significant downtime. In this webinar, we will look at the solutions and considerations for scaling properly, including modular designs for servers, storage, and networking hardware, support for hot-swappable components, and ensuring interoperability with existing hardware and software systems to future-proof installations.

AI and the Data Center (August 12th at 11am ET)

Designing AI into a data center presents several challenges, including managing the massive computational power required for training models, which demands specialized hardware like GPUs or TPUs. Data storage and transfer are also strained, requiring high-speed networks to handle large datasets. Optimizing resource allocation without downtime further adds to the complexity. In this webinar, we will look at each of these aspects.

Network Bandwidth and Latency Management (Oct 7th at 11am ET)

High-speed networking is essential for low-latency operations in modern data centers. This includes AI workloads, Edge computing, and/or cloud services. Increasing demand for faster data access can potentially create bottlenecks in network infrastructure. To mitigate this issue, developers are turning to high-speed interconnects, software-defined networking, and optimized network topologies to minimize packet loss and latency. We will look at all of these technologies and more in this webcast.

Future Proofing the Data Center (Nov. 19th at 11am ET)

Future-proofing a data center involves anticipating evolving technologies and scaling demands. Key challenges include adopting modular designs to accommodate future hardware, ensuring compatibility with emerging standards, and managing energy efficiency as workloads grow. In addition, rapid advancements in AI, edge computing, and cloud integration require a flexible infrastructure. These challenges, and more, will be discussed on this webinar.

Reliability, Security, and Resilience (Dec. 4th at 11am ET)

Data centers require continuous uptime and resilience against failures, cyberattacks, and other disruptions. Products deployed in this space must meet high standards for availability and data protection. As a result, engineers must design fault-tolerant systems with redundancy and automatic failover capabilities. That requires implementing a series of security-related principles, including encryption, hardware security modules, and secure boot mechanisms, as well as compliance with the proper industry standards and regulations. In this webinar, we will look at the present and future needs of maintaining secure, reliable, and resilient data centers.

Smart Manufacturing Series

Latency and Network Reliability (February 27th at 2PM ET)

Communications between devices and systems must occur with minimal latency to ensure seamless operations. In environments like autonomous assembly lines or robotics applications, delays can lead to defects or downtime. A key concern is ensuring network resilience even in harsh industrial environments, potentially fraught with interference or physical barriers. Potential solutions include deploying higher speed interfaces and networks, and/or implementing robust wireless networks and optimizing communication protocols. This session will look at the options that are available to developers, and the tradeoffs associated with each.

Designing Vision-Based AI Systems (June 17th at 2PM ET)

When you bring video into an AI-based application, you've upped the ante in terms of amount of data that's being collected many times over. Does all the data need to be processed? How do you know what's good data and what's not? And do you need to write your own algorithms, or can you depend on the MCU supplier? The answers to these questions is, "it depends." Check out this webinar where we try to simplify some of these extremely complex areas.

Wireless Networking in the Industrial IoT (October 15th at 11am ET)

The decision to implement wireless networks in an industrial setting can be a tricky one: performance is not always guaranteed and security risks prevail. In this webinar, we will look at the various technologies that are available, including Bluetooth, Wi-Fi, ZigBee, 5G, and others. We'll look at what tradeoffs are associated with each, and which one is best for your application. This includes the investment in both hardware and software, as well as the future-proofing that's desired for the long-life applications in the industrial and embedded arenas.

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Automotive

Designing Effective, Efficient, and Safe EV Chargers

It's far too late to say "EVs are coming." Clearly, EVs are here. That said, developers are still trying to figure out the best method for effectively, efficiently, and safely charging those EVs, especially in the mass chargers that are popping up all over our cities. In this webinar, we will look at the various methods being deployed for charging, and what you need to know, regardless of which side of the charger you find yourself on.

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High-Performance Interface Standards

A host of standards are available to push I/O expansion to acceptable levels for automotive and industrial applications. Those standards generally define the electro-mechanical expansion interfaces for daughtercards and more general-purpose I/O. Such standards help get products to prototype (and to market) far more quickly. In this webinar, we will review the latest high-end standards and look at the hardware that's neeedd to implement these high-speed interfaces.

IoT/IIoT

Generative AI at the Edge of the IoT

Generative AI can be a handy tool for a designer, but until recently, this was relegated to being run on the Cloud. Today, with the Edge-based MCUs pushing the limits of performance, such techniques can be performed at the Edge of the IoT, drastically reducing latencies and keeping your data on-prem for maximum security. The downside to the application is that it's not necessarily for the faint of heart, at least not yet. In this webinar, we will look at both AI and machine learning, and how they can be implemented at the Edge. We will look at the MCU options that are available, and the ecosystems that they carry.

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Is RISC-V Worth the Risk?

We've heard lots of talk about the virtues of the RISC-V architecture, how you can run a large number of cores, and where you don't have to pay licensing fees. But what's the real story behind the open-source instruction-set architecture (ISA)? In this webinar, we'll give you the low-down, and the info that some of the suppliers may not want you to hear.

Stabilize Your Supply Chain

The extremely long component lead times of a couple of years ago appear to be in the rear-view mirror. But there are always exceptions. In addition to those exceptions, products get "end-of-lifed" and there is always the possibility of encountering counterfeit parts. In this webinar, we will show you how to avoid a costly redesign, or how to perform one if it's the only option, and how to ensure that your products are actually what you ordered, as well as strategies for developing custom products with minimal risk.

The New World of Test and Measurement

In many ways, how we test our designs hasn't changed all that much. But in some ways, it's extremely different, given the amount of data we take in, the methods in which to retrieve the data, the analytics that are run on that data, and so on. And of course, the tools themselves are lightyears better than the older models. In this webinar, we will look at how the testing process has become so data driven, and what tools are at the engineer's disposal to properly implement test.

TinyML Might Be Just the Right Size

If you're application doesn't require a full-blown AI implementation, TinyML might be just the thing for you. But what is TinyML and how does it work? Is it open-source, or do I have to pay licensing fees? Will my MCU supplier give me all the code that I need, or am I basically on my own? In this webinar, we'll show you where TinyML makes sense and where it doesn't, based on a series of common applications.

Understand the Potential of Silicon Carbide

The hype meter is a little lower on Silicon Carbide (SiC) technology these days compared to some related technologies, but real engineers understand its place and its potential. This is particularly true for high-voltage applications, like EVs, high-performance computing, and data centers. However, like any technology, it comes with tradeoffs, including a higher cost. But if your application requires higher power in a smaller space, SiC is likely your best option. In this webinar, we will go through the basics of SiC, so the engineer can make an informed decision on whether this is the correct path to follow.

Medical/Healthcare

AI in Medical-Device Design

AI is impacting every facet of the design and development process, in just about every application, including the design of medical devices. If implemented properly, the cutting-edge technology has the ability to revolutionize the design of medical electronic systems, enabling smarter, faster, and more efficient healthcare solutions. In this webinar, we will explore the integration of AI in medical device development, covering key topics such as AI-driven diagnostics, predictive analytics, real-time monitoring, and hardware optimization. Subject-matter experts will discuss application-specific challenges, regulatory considerations, and potential hurdles such as data security and algorithm transparency. Attendees will gain insights into how AI enhances medical electronics design, from wearables to advanced imaging systems.

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