



TI Technology Day Israel 2011

Session Titles & Abstracts



Session 1

10:30 – 11:30

Track 1

Stellaris® ARM® Cortex™ - M4 with Floating Point Unit, Blizzard Family - based MCUs

This session will provide you an insight into the Cortex-M4 architecture, key peripherals (such as Ethernet, USB, External Peripheral Interface, motion control, etc.), hardware tools and the StellarisWare software offering. Stellaris® MCUs and ARM® Cortex-M4 offer a direct path to the strongest ecosystem of development tools, software, and knowledge in the industry. Designers who migrate to Stellaris will benefit from great tools, small code footprint, and outstanding performance. The Stellaris family offers the industry's first and broadest implementation of Cortex™-M4 and the Thumb-2 instruction set.

Track 2

How to select the ARM® for your design

You know you need a CPU in your system, and you are pretty sure you want to go with some form of an ARM® core. But what form does that CPU take? Should it be a mainstream microprocessor, a DSP, an ASIC, an FPGA, a configurable core or something else? What are the advantages and disadvantages of each of the ARM® options? What if I have already selected my OS? How does that affect the choice of my CPU? How do I ensure that I am getting the maximum performance from my CPU? These are just some of the questions/issues we will tackle in this track. Choosing the best ARM® processor for your design can be a difficult decision. In this session, developers will gain insight into tradeoffs between varying ARM®-based processors, including TI's Stellaris Cortex-M3 based microcontrollers and Sitara Cortex-A8 and ARM®9 based microprocessors. The session will address key design considerations, including power, interface, software support and performance requirements. The presenter will illustrate processor selection tips and tricks through industrial automation and human interface application examples.

Track 3

High Speed Dataconverter Basics & Advanced - PART I

The 3h High Speed Dataconverter Basic & Advanced session covers the basics of High Speed ADCs and High DACs. All relevant topics like the parameters, clocking, driving and testing ADCs as well as the digital feature sets inside the DACs are covered. An updated product portfolio and product outlook complete this session.

NOTE: Each chapter, especially on the ADCs is discussed in more detailed as in the Basic session.



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Track 4

Digital Power: Solving point-of-load power requirements with innovative and configurable Fusion Digital Power Controllers & digital support devices

While most of the power solutions used nowadays for non-isolated Point-of-Load power are based on analog control, more and more high performance applications benefit from the use of full digital control or digital assisted control. The digital approach provides a new degree of flexibility, enables digital system communication and monitoring. The topic covers TI solutions for this approach and will present not only the dedicated controllers but also available support devices like digital MOSFET drivers, system monitors / managers and power interface devices for current limiting and hot swap management with digital control interface.

Session 2

11:30 – 12:30

Track 1

C2000™ – Concerto™ (College), First dual Core C28 + M3 solution for motor control, smart grid, solar and other Ees

When communication meets controlling, Concerto is the first dual microcontroller cores chip (C2000™ + Cortex M3). It is TI's first Multi-Core Micro-Controller that separates the controlling from the host process by taking the overheads that are involved in interrupts and communication away from the real time processor. In this track we will start by understanding the market that this processor is aiming, we will show the full solution including a deep dive into the dual core of F28M35x. We will go through the different peripherals each core has for a better understanding of the communication between the cores. For the SW side we will show the tool that controls both the cores and the debugging process for both cores within it. We will also go over the boot sequence of the dual core and understand how easy it is to program the chip.

Track 2

Essential concepts of complex SOC design for OMAP, DaVinci™ and Sitara™

Learn how to successfully develop with TI's ARM®, OMAP™ and DaVinci™ devices. This session will provide a hardware overview as well as a dissection of software architecture. Attendees will gain an understanding of TI delivered software components (OSs, LSP, codecs), use cases, collateral and support paths, and system integration. Program management best practices will also be covered.

Track 3

High Speed Dataconverter Basics & Advanced - PART II

The 3h High Speed Dataconverter Basic & Advanced session covers the basics of High Speed ADCs and High DACs. All relevant topics like the parameters, clocking, driving and testing ADCs as well as the digital feature sets inside the DACs are covered. An updated product portfolio and product outlook complete this session. NOTE: Each chapter, especially on the ADCs is discussed in more detailed as in the Basic session.



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Track 4

Power components

In this session we will present power components, combinations for various end equipment and new devices in our portfolio.

Session 3

13:30 – 14:30

Track 1

MSP430™ - Next Generation FRAM enables new applications especially in energy harvesting and metering

The FRAM is here and has great impact on many applications. In this session you will learn about how to use it and examples from energy harvesting and metering will be presented.

Track 2

DaVinci™ processors, unprecedented performance and integration for video applications

The DaVinci™ family of processors provides a range of video encode and/or decode solutions from single channel Standard Definition (D1) up to multichannel full High Definition (1080p60). There is also a range of application specific reference designs for IP Cameras, Digital Video Recorders, and Remote Media Displays that provide customers a quick time to market as well as a full TI eBoM. There will be a particular focus on the latest DM816x and DM814x products that provide multi and single channel full HD capability alongside the power efficiency and processing performance of the ARM® Cortex™ A8. This session will provide an FAE with an overview of the family, highlighting which products are best placed for each market and typical customer requirements. The aim is to give FAEs the confidence and background to engage in a video discussion with customers.

Track 3

Signal chain components

In this session we will present ADC's DAC's and other components, combinations for various end equipment and new devices in our portfolio.

Track 4

Tips and Tricks for the Design of Power Solutions

This topic covers background information a designer should have in mind when selecting the proper components as for example capacitors and inductors, but also for the selection of switching regulators and Power MOSFETs. In addition some practical implemented circuits to overcome device limitations or to solve specific application problems will be presented.



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Session 4

14:30 – 15:30

Track 1

LPRF and RFID latest news

We will go through description of different types of RFID: LF, HF and UHF. TI solutions in RFID field will be discussed briefly according to the types. Latest updates in RFID and LPRF will be presented as well. Different types of LPW, such as UNDER 1G, 2.4G, Standard and Non-Standard will be described. The LPW networks will also be described. Implementations: Different types of LPW.

Track 2

Video Codecs: what, how and which

Our investigation of video codecs begins with examining how they work. Next, we will see how these codecs are implemented on TI's OMAP™ and DaVinci™ processors. Finally, we will compare and contrast many of the popular codec standards, such as MPEG-2, MPEG-4, H.264 and VC1.

Track 3

Solving the analog front end dilemma for High Speed ADCs

Within this 1h-1.5h session the analog front-end of High Speed ADCs will be discussed. It covers the design of ADC driver plus the High Speed ADC itself.

Track 4

Battery management: Gas Gauging and Charge Management

Growing expectations from the end user regarding state of charge of the batteries incorporated in portable equipment drives sophistication in charge management as well as accuracy of run time prediction. This track provides detailed insights into different gas gauging methodologies and achievable results as well as limitations utilizing latest technology improvements. It will give guidelines on how to choose the optimal charger topology for a given application. Wireless Power Consortium (WPC) has defined a Wireless Power transfer standard up to 5W. A complete solution (TX/RX) to this standard will be presented here.



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Session 5

16:00 – 16:45

Track 1

Analog Products for Motion Control & Drives

This presentation shows typical Motor Control solutions for the major motor types in the market: Brushed DC, Stepper and all different types of 3-phase motors. Starting from this, some solutions based on the following family of products are discussed in detail: Integrated driver (DRV8x), ADCs for current and position measurement, Isolation and Interface.

Track 2

Connectivity Solutions

In this session you will see and understand the portfolio TI has in Bluetooth and wireless connectivity. Some key issues will be discussed.

Track 3

Choose the right data converter for your application

Recap of Basics (Nomenclature, Terms), description of architectures (Delta-Sigma, SAR, Pipeline), their respective strengths and weaknesses per application and consequent selection criteria.

Track 4

Power for industrial applications (including sensors and Power over Ethernet)

The presentation gives insight into specific of power requirements and solutions which can be found in the majority of industrial applications. Examples for non-isolated and for isolated voltage conversion will be shown. Switching regulators and linear regulators based solutions will be covered as well as specific topics like noise reduction, input protection, current limit, voltage OR-ing, generation of negative or bipolar output voltages will be highlighted.