



Technology Day Orlando November 3, 2011

Time	Session	Wireless Connectivity	Power, Battery & High Speed Design	Prototyping Tools, Digital Power & Cortex M4	Linux/Android Bring Up Track
8:30 to 9 a.m.	Registration				
9 to 10 a.m.	1	Hands-on Workshop: Understanding and Developing a ZigBee® System Using the CC2530 ZigBee Network Processor (Part 1 of 3)	LED Lighting: Solutions That are Ready by Using TI Lighting Reference Designs	Hands-On Workshop: The Texas Instruments Modular And Versatile Reference Kit (MAVRK™) Modular, System-Level Evaluation Tool (Part 1 of 3)	Hands-On Workshop: How to Debug Your ARM-Based Linux Application (Part 1 of 4)
10 to 10:15 a.m.	Break				
10:15 to 11:15 a.m.	2	Hands-on Workshop: Understanding and Developing a ZigBee® System Using the CC2530 ZigBee Network Processor (Part 2 of 3)	Multicell System Concerns and Solutions	Hands-On Workshop: The Texas Instruments Modular And Versatile Reference Kit (MAVRK™) Modular, System-Level Evaluation Tool (Part 2 of 3)	Hands-On Workshop: How to Debug Your ARM-Based Linux Application (Part 2 of 4)
11:15 a.m. to 12:30 to 1:30 p.m.	Lunch				
12:30 to 1:30 p.m.	3	Hands-on Workshop: Understanding and Developing a ZigBee® System Using the CC2530 ZigBee Network Processor (Part 3 of 3)	What's New in TI Power Devices for 2011	Hands-On Workshop: The Texas Instruments Modular And Versatile Reference Kit (MAVRK™) Modular, System-Level Evaluation Tool (Part 3 of 3)	Hands-On Workshop: How to Debug Your ARM-Based Linux Application (Part 3 of 4)
1:30 to 1:45 p.m.	Break				
1:45 to 2:45 p.m.	4	Adding Wi-Fi and <i>Bluetooth</i> ® to TI Embedded Processors (MCUs and MPUs)	How to get the Best Performance out of Your High-Speed Data Converter	Understanding Digital Power Solutions from TI	Hands-On Workshop: How to Debug Your ARM-Based Linux Application (Part 4 of 4)
2:45 to 3 p.m.	Break				
3 to 4 p.m.	5	Wireless Power: Total Solution for Charging Using the Wireless Power Consortium Standard	Analog Filter Design Considerations with High-Speed Data Converters	Introduction to the Stellaris® ARM Cortex-M4F Family	Industry's First 10-GHz Cumulative Floating- and Fixed-Point Multicore DSP

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Texas Instruments

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Track and Course

Abstracts

Track 1 – Wireless Connectivity

Hands-on Workshop: Understanding and Developing a ZigBee® System Using the CC2530 ZigBee Network Processor (Part 1, 2 and 3)

This three-hour workshop will introduce you to ZigBee® and how to build a ZigBee application by understanding the design process for a ZigBee network processor. You will come away from this workshop understanding how to set up a ZigBee mesh network using ZigBee coordinators, routers and end devices. You will run packet sniffers and then observe the personal area network (PAN) traffic over the network. Other features you'll learn in this workshop include mesh routing, network commissioning and PAN formation. Laptops will be provided and all attendees will leave with a CC2530ZNP mini development kit (CC2530ZDK-ZNP-MINI).

Adding Wi-Fi and Bluetooth® to TI Embedded Processors (MCUs and MPUs)

Quickly and easily add Wi-Fi and/or Bluetooth® technology to systems using TI MPUs (AM/DM37x, AM18x) and MSP430™ and Stellaris® MCUs. In this session, we will start with an overview of the WL1271-TiWi 802.11b/g/n + Bluetooth transceiver and CC2560-PAN1325 Bluetooth® transceiver, and then go into the details of the platform. The platform provides complete system integration of all components including WLAN and Bluetooth hardware, host hardware, Linux WLAN drivers, supplicant, TCP/IP integration, Bluetooth stack, profiles, example code for configuration, and sample source applications. We will walk through the sample applications and explain how you can get started developing WiFi and Bluetooth applications.

Wireless Power: Total Solution for Charging Using the Wireless Power Consortium Standard

Wireless power technology now has a practical solution for portable devices. This session will focus on the technology of inductively coupled wireless power transfer. This provides a safe, efficient and convenient method of recharging portable devices. We will explain the fundamentals of the Qi standard endorsed by the Wireless Power Consortium, which ensures interoperability between multiple devices and charging sources. The basics of magnetic coupling efficiency, circuit implementation, receiver/transmitter communication and system interactions will be explained, followed by a review of practical implementations using the bqTESLA chipset from TI.

Track 2 – Power, Battery and High-Speed Design

LED Lighting: Solutions That are Ready by Using TI Lighting Reference Designs

As LED lighting becomes more prominent, Texas Instruments continues to develop solutions for different LED lighting situations and applications. In this session, we will walk through several solutions that are available from TI in a reference design and discuss the technical details behind each, such as operating voltage range, power factor correction, efficiency, dimming, isolation methods, etc. We will also explain what we mean by an evaluation module vs. a reference design. Examples of some of the reference designs discussed are a 20-W T8 light bulb replacement that uses a single-stage PFC flyback topology; a 9-W PAR30/38 light bulb replacement that uses a buck topology and is TRIAC-dimmable; a 13-W light bulb replacement using an isolated PFC flyback topology that would take a universal AC input; and an MR16 light bulb replacement using new LEDs from Cree.

Multicell System Concerns and Solutions

High-cell-count applications present additional battery management challenges for Li-ion pack designs compared to existing familiar applications such as notebook PCs, tablets or mobile phones. This session will be a basics overview of charging, protection, chemistries, gas gauging and some of the newer battery management products that support these application needs. Specific examples for stand-alone and microprocessor-controlled solutions will be reviewed to highlight the trade-offs in system design.

What's New in TI Power Devices for 2011

This session will provide an overview of TI's latest power management products. The focus of this presentation will be on new, high-performance power devices including DC/DC converters with integrated FETs, DC/DC controllers, high-efficiency FETs and TI's new integrated power solutions. We will also touch on the latest in offline switching controllers, battery chargers and integrated power management ICs.

How to Get the Best Performance Out of Your High-Speed Data Converter

This session deals with some of the common issues that haunt the proper application of high-speed ADCs. This is meant for engineers that have a working understanding of data conversion fundamentals already. We will cover subjects such as clocking and jitter, driving the analog input, driving/capturing digital data effectively, and layout considerations. The session will focus more on real-world practical issues and their solutions and less on theoretical or mathematical derivations.

Analog Filter Design Considerations with High-Speed Data Converters

High-speed data converters require some sort of analog filtering to achieve optimum performance. This presentation will investigate procedures for designing analog filters with DACs and ADCs. On the DAC side, the key concern is simultaneously maintaining the DAC load and proper filter impedances with connections to the analog modulator. On the ADC side, the techniques for designing filters between differential op amps and ADCs will be explored.



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Track 3 – Prototyping Tools, Digital Power and Cortex-M4

Hands-On Workshop: The Texas Instruments Modular And Versatile Reference Kit (MAVRK™) Modular, System-Level Evaluation Tool (Part 1, 2 and 3)

During this workshop, you'll learn how to use TI's common footprint of MAVRK™ modules, which allow you to quickly evaluate multiple configurations without major modifications. Each MAVRK module is a reference-level design that allows full performance evaluations of the device in the system. The MAVRK system is motherboard-based, allowing multiple combinations of RF, ADC, DAC, MCU, transceiver, signal conditioning and driver circuits to be configured to a system-level design. The MAVRK concept is not wholly designed around hardware. Its design methodology incorporates documented modular software, firmware, reference hardware and an initiative GUI to enable rapid proof of concept of a system. The ultimate goal of the open-source MAVRK platform is to reduce final system development time by up to nine weeks. During this hands-on session, we will utilize the MAVRK platform and several component-level demos to show how they can be manipulated to design a multicomponent system. Prerequisites for this course are a working knowledge of C programming and a copy of Code Composer Studio™ IDE 5.1. Please bring your own laptops; information will be provided on where to download Code Composer Studio software

Understanding Digital Power Solutions from TI

Ever wonder how something as analog as a power supply can be digital? This session will give an overview of what digital power management means, the various degrees of digital power, and the multiple ways it can be implemented. The session will also highlight the benefits digital provides to power supply designers. We will explain the different levels of complexity of digital power implementations available from TI, from the TPS40400 analog PWM controller with a digital PMBus interface, to the topology-optimized digital state machine UCD9K family of PWM controllers and sequencers for nonisolated point-of-load power, to the fully-programmable power-hardware-optimized UCD3K family of digital controllers for isolated power supplies, to the full-flexibility fully programmable C2000™ family of MCUs for either isolated or nonisolated power supplies. Each of these implementation options will be introduced and discussed in terms of their benefits and trade-offs. At the end, the session will provide an overview of all the hardware and software development

Introduction to the Stellaris® ARM Cortex-M4F Family

In this session, we will take an in-depth look at the new Stellaris® ARM Cortex-M4F family.

Track 4 – Prototyping Tools, Digital Power & Cortex M4

Hands-On Workshop: How to Debug Your ARM-Based Linux Application (Part 1, 2 3 and 4)

This session will offer an overview of TI's software development kit strategy, direction and components. An overview of Code Composer Studio™ software v5 will be given as it pertains to ARM/Linux development and debugging, along with an overview of emulator options. Attendees will have the opportunity to practice debugging a Linux application using the Code Composer Studio IDE and an EVM platform.

Industry's First 10-GHz Cumulative Floating- and Fixed-Point Multicore DSP

This session will review key aspects of TI's latest DSP core and its family of C667x devices. With the ability to choose between fixed- and floating-point instructions on a cycle-per-cycle basis, combined with 1.25-GHz performance on multiple cores, the C667x DSP allows designers to bring down system complexity and take advantage of the natural parallelism in various high-performance applications. Through improved SIMD functionality, numerous memory enhancements, and new peripherals and accelerators, C667x devices provide the ideal solution for demanding applications with a scalable option.

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