

# Innovative solutions from Texas Instruments

## Save the date! June 9<sup>th</sup> , 2015

### Seminar in Daniel Hotel, Herzliya

#### Agenda

##### **Registration and Exhibition (8:00-9:00)**

- Opening
- Addressing the IoT challenge – from the sensor to the cloud (Avner Goren)
- Innovative applications with award-winning DLP technology (Kent Novak, Sr. VP and General Manage, DLP Products)

##### **Track 1: Power & Analog**

- The most Common and innovative Industrial Sensors Solution
- TI NexFET™ provides lowest resistance, and support up to 100V!
- In Circuit latest TI Isolated Solutions
- Design Considerations for Point of Load with High Switching Frequencies
- New innovative Power Products from Texas Instruments
- Lottery - **10.1” Lenovo Tablet**

##### **Track 2: MCU + Connectivity**

- Implementing ARM processing fused with MSP430™ MCU DNA ULP Peripherals
- System on Chip Wireless Simplink - CC26xx/CC13xx
- TI simplify your System connection to IOT - Wireless Connectivity CC3100/CC3200
- Sitara innovative solutions in Industrial Automation
- How to use innovative DLP technology in new and exciting industrial, display and scientific applications
- Lottery – **10.1” Lenovo Tablet**

#### **Abstracts:**

##### **Track 1: Power & Analog**

###### **The most Common and innovative Industrial Sensors Solution** (Melman, ofer)

This session will provide a cursory introduction to TI innovative sensing technology. It will also include a

discussion on the benefits of the new architectures , roadmaps , highlighting many of the advantages of using TI sensing techniques.

The new architectures allows for improved system design with higher accuracy and much greater flexibility.

There are more support tools available now that will also be discussed.

###### **TI NexFET™ provide lowest resistance, and support up to 100V!** (Nowakowski, Rich)

TI has released a new line of higher voltage and lower Rds(on) Power MOSFETs that are suitable for many applications and help designers innovate. This presentation will discuss TI's NexFET advantages, such as low on-resistance, low gate charge, and high robustness compared to other FET technologies, and overview TI's discrete, Power Block, and Power Stage solutions. Power MOSFET selection criteria and examples for isolated and non-isolated power supply architectures, motor driver, hot-swap, and battery management applications will be discussed.

### **In Circuit latest TI Digital Isolators: Operation, Benefits and Certification Standards**

(Beillin, Shirley)

Industrial system designers that deal with high voltages know how critical galvanic isolation is for their system design. Galvanic signal and power supply isolation provides protection from harmful voltages, prevents unintentional ground loops and makes transceiver operation independent of large ground potential differences.

This session explains the functional principle of digital capacitive isolators (capacitive couples), discusses their benefits over other isolation technologies, and presents design concepts for isolating. We will review the key performance and robustness factors including the high voltage performance of the isolation barrier, robustness to transients and lifetime reliability. We will discuss the definition and relevance of parameters such as Maximum Transient Overvoltage (VIOTM), Ramp-to-Breakdown (RTB), Maximum Surge withstand voltage (VSURGE), and Maximum Continuously Rated or Working Voltage (VIORM) and explain why high voltage testing is important for industrial applications. The session will also explain new developments in industrial certification standards for capacitive and magnetic couples which historically had to certify against an opto-coupler norm (IEC 60747-5-5 and -5-2) due to the lack of a dedicated standard for capacitive and magnetic couples. Because digital isolators which use these technologies represent a large and growing share of the market, the new dedicated VDE pre norm for capacitive and magnetic couplers, VDE 0884-10 Ed. 2, will be discussed, including the potential impact to manufacturers in the equipment industry.

### **Design Considerations for Point of Load with High Switching Frequencies**

(Nowakowski, Rich)

DC/DC converters with higher switching frequencies are becoming more popular due to their ability to decrease the size of the output capacitor and inductor to save board space. This presentation will examine the design trade-offs of several example designs using a 48V input to a 5V output at 1 Ampere with three different switching frequencies. The presentation will briefly compare and contrast the size, efficiency, ripple, transient response and cost of each design as well as using WEBENCH® Designer to help optimize the trade-offs.

### **New innovative Power Products from Texas Instruments** (Nowakowski, Rich & Yehezkia, Shlomi)

Our goal is to help designers differentiate their own products in the marketplace. This presentation will feature the latest innovative power management products and how they can help your application. The power management products including new isolated and non-isolated switching regulators - with and without integrated FETs, power modules, linear regulators, protection and monitoring devices, GAN solutions and battery management products.

## **Track 2: MCU/EP & connectivity**

### **Implementing ARM processing fused with MSP430™ MCU DNA ULP Peripherals**

(Aharonov, Shai & Tsioni, Amir)

ARM Processing fused with MSP430™ MCU DNA.

Take the first look at the MSP432 portfolio and witness the fusing of MSP430 ULP DNA & proven peripherals into the powerful 32-bit ARM Cortex-M4F CPU.

See the Unique features first time implemented on Cortex-M4 and learn how to get the most out of the low power, high performance microcontroller. Get started quickly by leveraging a complete and easy-to-use development ecosystem that provides both a seamless migration path from MSP430 and a powerful high-level software offering.

### **System on Chip Wireless Simplink - CC26xx/CC13xx** (Sverre)

Connecting to the World of lowest power consumption with the highest RF performance becomes real.

Understanding the device's RF performance is the key point of the Success of the whole RF solution. In This session we will expose the new ultra low power Wireless MCU family SimpleLink CC26XX, and SimpleLink CC13XX. We will focus on the key features, digital part

and radio internal description , development tools ecosystem, how to simplify your design and how to get started with your first application.

### **TI simplify your System connection to IOT - Wireless Connectivity CC3100/CC3200**

(Raveh, Yariv)

TI's SimpleLink Wi-Fi CC3200 wireless MCU and CC3100 Wireless Networking Solutions are differentiated products for internet of Things (IoT) applications. This session will have information on product offering, technical details on key use cases and designs implemented such as camera, Audio and smart plug. We will also go through details on key components of the solution including low power capabilities, security and easy configuration (Smart Config).

### **Sitara innovative solutions in Industrial Automation** (Aharonov, Shai & Tsioni, Amir)

Sitara™ industry leading integration, enabling smaller systems and low power consumption: Highly integrated, ARM® Cortex™- A9 /A15 SoC with enhanced industrial communication capabilities with integrated Industrial Ethernet protocols (EtherCAT, Profinet, Ethernet/IP and others).

That's what makes it to be the most efficient solution for your system.

In this session we will discover the new Features of this unique family such as the new PRU, Display Subsystem, Camera I/f etc.

We elaborate on the differentiation of TI embedded processors comparing to the varied solutions in the market while emphasizing the advantages of full ecosystem provided by TI and makes your work easier.

Being exposed to the scalable Architectures for the entire market by using this Sitara family will give you the advantages of how to design your system better.

### **How to use innovative DLP technology in new and exciting industrial, display and scientific applications** (Benjamin Lee and Christian Thevot, DLP Products)

This technical training provides an overview of industrial display and advanced light control applications enabled by award-winning DLP technology. Optical sensing techniques for Spectroscopy, 3D scanning and 3D printing in several industrial and other use cases will be discussed. Spectroscopy is a well-known technique to analyze materials from food processing, crops, pharmaceuticals, petrochemicals, engine fluids, health analysis and skin care/health applications. This session gives an overview of 3D scanning technique for machine vision use case where DLP products project of custom, multi-spectral, real-time adaptable patterns onto the targeted objects to capture physical measurements, analyze location, or inspect a surface. For display applications such as head mounted display, digital signage, and appliances, key value propositions will be covered along with tools and TI Designs to help customers evaluate, prototype and get to production faster.

Lottery - **10.1" Lenovo Tablet**

