Track 1: Embedded Processors and Controllers

TMS320C2000 MCU overview & positioning:

C2000 Getting Started: The right architecture for real-time control

- Learn how the C2000 family combines the benefits of processing performance with system integration to bring a microcontroller family perfect for real-time control applications
- Why C2000 MCUs for control? Architecture & Key Features
- C2000 devices are 32-bit microcontrollers with control-optimized peripherals and precision integrated analog designed for real-time control applications. Learn more about the key features of the C2000 family and how its architecture is fine-tuned for control applications.
- Which C2000 MCU is best for your application?
- Piccolo™ MCU Series
    - The new Piccolo TMS320F2802x/F2803x series provides a low-cost, high-integration solution to help drive processor intensive real-time control into cost sensitive applications. Learn more about the key features, product offerings, and sample target applications.
- Delfino™ MCU Series
    - With the Delfino series, TI offers two flavors of floating-point MCUs with unparalleled performance. F2833x devices integrate up to 512kB of flash and operate up to 150 MHz The new C2834x Delfino MCUs push the limits even further integrated up to 516kB of SRAM and offer up to 300MHz of performance. Learn more about the key features, product offerings, and sample target applications.
- The support you need
    - With C2000 controlCARD based tools, you'll learn how this innovative approach will save you time and money developing control designs. controlCARD based tools are also used in application specific tools such as digital power and motor control with PFC
    - Learn how to develop cost sensitive, real time control applications with Piccolo and the Piccolo controlSTICK
    - In addition to excellent hardware reference platforms, the C2000 MCU family incorporates robust software libraries that jumpstart development. You'll learn more about our software libraries such as digital motor control, digital power, signal processing, and our platform software header files.

Stellaris® Cortex™ M3 MCU

Industrial Cortex-M3 solutions

- Stellaris is the industry's leading family of robust, real-time microcontrollers (MCUs) based on the revolutionary Cortex™-M3 technology from ARM®. The award-winning Stellaris 32-bit MCUs combine sophisticated, flexible mixed-signal system-on-chip integration with unparalleled real-time multitasking capabilities. With over 140 offerings, the Stellaris family includes leading peripherals like10/100 Ethernet MAC+PHY, CAN, USB On-The-Go, USB Host/Device among others

Stellaris Family technology

- Learn more about Stellaris family technology and the unique capabilities Stellaris MCUs can bring to your next embedded design
- "zero to 32 bits" in less than 10 minutes : low cost Stellaris evaluation kits, development kits, and reference design kits provide compact, connected, versatile platforms for evaluation and development with Stellaris MCUs

Accelerate your time to market

- Stellaris reference design kits for motion control and connectivity applications provide optimized, working reference designs. Use the reference design kit to evaluate and modify for your own application, or use Stellaris modules to quickly enter production for small to mid-volume designs. All designs are "open tooled", meaning that the schematics, BOM, gerbers, and software source code are all freely available for download and use with Stellaris MCUs.

StellarisWare makes design easy

- With Stellaris microcontrollers, all your programming can be in C/C++, even interrupt service routines and startup code. We make it even easier by providing StellarisWare software support that includes free source code and royalty-free libraries for applications support. Stellarisware software includes a peripheral driver library, graphics library, USB library, Ethernet support, numerous code examples, in-system programming support including bootloaders, and a separate IEC60730 support library. StellarisWare software compiles on leading development tools like ARM/Keil Microcontroller Development Toolkit for ARM, IAR Embedded Workbench, Code Red Technologies' RedSuite, and Code Sourcery SourceryG++ development tools.

Multimedia

As DSP based solutions have evolved to include ARM® processors to complement the DSP, high-level operating systems, particularly Linux, have emerged on the scene as a key requirement. As such, TI is supporting Linux on DaVinci™ digital media processors and OMAP™ applications processors. During this session you will learn more on how TI helps significantly shorten the development cycle by providing open source developers a more streamlined software development process. It also talks about how to avoid common pitfalls and addresses care-abouts of design engineers throughout the challenge of adding Multimedia capabilities to existing products.

Low-power ARM platforms - OMAPL1x

The OMAP-L1 is a low-power applications processor based on an ARM926EJ-S™ and a C674x DSP core with a rich set of peripherals. The OMAP-L1 features robust operating systems support, rich user interfaces and high processing performance life through the maximum flexibility of a fully integrated mixed processor solution.

Track 2: Drivers, Interfaces and ADCs

Interfaces for industrial applications

An overview of TI Data line circuits in noisy and demanding environment. From CAN transceivers to RS-485 solutions and industrial serdes.

Lighting

As LED design quickly expands into the general lighting marketplace, a key component, the LED driver, is often overlooked. This session covers the aspects of a HB LED lighting system and the unique circuitry that drives it.

Motion Drive & Control Analog solutions

The presentation will cover the basics of the different types of motor, the drive techniques, some of the closed loop control / protection considerations (speed, torque, phase, duty cycle etc.).

Why Use a 24-Bit Converter When You Only Need 12-Bits?

Many times a lower cost higher performance system can be built by using a 24-bit converter rather than using a combination of amplifiers and 12-bit solutions. Some typical applications for load cell and temperature will be evaluated and both approaches compared. The wide dynamic range of the 24-bit solution provides an approach that may not require any external amplification and gives a lower noise result, together with a system cost optimization.

Track 3: Low Power and Low Power RF

Power for Portable Applications

Techniques and solutions to maximize battery lifetime in size and energy-constraint systems. Design considerations for DC-DC and linear regulators, overview of point of load solutions. SwitcherPro design software for DC-DC converters.

MSP430 - Next Generation of the low power µC-Family

Family comparison, features / advantages of the latest MSP430F5xx devices. New peripherals like USB, new industrial sensor technologies and integrated wireless /Low-Power RF connectivity for the CC430

RF Hardware design

There are several aspects to consider when designing an RF system. This presentation discusses: Regulations, selecting the right protocol, how to select correct IC for the application, and some HW design considerations.

RFID

Attendees in this session will learn about the strengths and weaknesses of passive LF, HF, UHF, and active RFID (low power wireless) as well as how to select the appropriate technology for a given application. You will get an overview of the current RFID

Track 4: Design Recommendations

Sensors and the Analog Interface

In this presentation we will discuss the way to monitor many different physical phenomena, such as temperature, air flow, humidity, and power. We will discuss numerous sensor characteristics and the various styles of sensor signal conditioning.

Power Supply Tips and Tricks

Data sheets of components do not detail all the possible ways how to use the related device. This lecture will illustrate ideas, implementations and solutions which have been developed by Texas Instruments power supply design service team to address different application requirements and special customer needs. Examples of this are: How to overcome typical limitations (as for instance voltage ratings) of switching dc/dc converters, possibility to use them in not so familiar topologies as for instance single or multi output SEPIC and to augment their features (spread spectrum to reduce EMI, dimming, driver strength).

Solving the Analog Front End dilemma for High Speed ADC

In designing a signal chain, engineers are required to meet performance and price requirements that largely become defined by the selection of the analog to digital converter (ADC). Many times system goals also dictate the signal chain must also be responsible for practical features such as gain, filtering, level shifting and single-ended to differential conversion. In particular, this seminar will cover how the ADC selection impacts signal chain architecture and component selection and practical signal chain design examples. The review will include lab measurements, a performance summary, as well as tips & tricks.

Tackling EMI and RFI at the Board and System Level

ESD issues: explanation of the standard ESD (Electrostatic Discharge) test methods, including IEC61000-4-2. EMI issues are becoming the most common cause for redesign nowadays. Pitfalls and how to avoid these issues.