



Lecture and abstracts

Session 1 (9:30-10:45)

Lecture 1

High Speed Dataconverters plus Transformer vs. Op-Amp Input, Interleaving & Averaging

After a quick update on dataconverter basics, this session will give you a deeper understanding on the additional dataconverter features like digital processing blocks and interfaces. We are going to cover also the analog interfaces for various applications. Covering dataconverter basics, Opamp vs. transformer drive, interleaving & averaging.

Lecture 2

Industrial Isolation: The Technology, Comparisons & Products

Multiple options are available to implement galvanic isolation. Apart from isolation technologies like capacitive, optical and inductive/magnetic, they must also contend with the various isolation standards regarding voltage ratings and creepage/clearance distances. This discussion intends to simplify the decision for the right isolation solution.

Lecture 3

Avoid Electrical Stress on your Op-Amps

A very common question for operational amplifier applications is 'can the inputs of an amplifier go above the power supply rail?' - particularly with multiple power supplies in a system. Another overstress scenario is that a signal from the "real world" or a separate part of a system, under different power, appears on the input or output of an opamp. In order to design systems that are reliable and easy to manufacture and have low latent field failures, this presentation is a must-attend. We will describe common ESD cells and the input, output, and power supply pin circuitry that are candidates for Electrical Overstresses (EOS) events. We will also discuss the ESD stress models for Human Body Model, Machine Model, and Charged Device Model. You will understand the opamp input/output circuit structure so you can design a robust system outside the integrated circuit that prevents Electrical Overstress errors.

Session 2 (11:15-12:30)

Lecture 1

Processors for Computation intensive Industrial Applications

TI ARM and ARM+DSP based industrial processors, with the right set of peripherals and sw to implement different protocols. Processing workload scenarios and optimization tips.

Lecture 2

PoE Plus: The new Standard for Ethernet Power

Basics of providing power for Ethernet applications via the network cable, making external power supplies unnecessary. Solutions for both ends of the cable will be discussed, implementation differences between the initial standard IEEE803.3af (12.95W) and the new higher power standard IEEE803.3at will be outlined and application related topics like power OR-ing with auxiliary wall-plug adapters, isolation requirements, over voltage protection and ways to get most power out off the available input power will be highlighted.

Lecture 3

Delta Sigma Converters & How to exploit ADC Architecture

We will cover in depth the modulator and filter blocks so you can understand in detail how delta-sigma converters work. Their unique characteristics make them outstanding choices in many applications but can also limit their use in others. Additionally, we will discuss the different ADC architectures on the market and the relative benefit and trade- offs of the different technologies.



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„Das Seminar gab mir viele Impulse für neue Ideen.“

Session 3 (14:00 – 15:15)

Lecture 1

TI StellarisM3 Cortex MCUs

Learn about the 4 generations of StellarisM3, the peripherals, unique value proposition and target applications: Cortex M3 architecture, Low Power modes and the power consumption associated with each. Nested vectored interrupt controller: # of interrupts, Deterministic Serial Wire Debug: Trace info, MPU: Safe RTOS, Single cycle instruction fetch, Code size Thumb2 (16, 32) vs. Thumb (16), FLASH, ROM, DMA, hibernate, EPI, etc. Peripherals: CAN, USB, Ethernet, EPI. Motion Control Module (setup, resolution, dead time, frequency modulation, etc.), application examples.

Lecture 2

Motor Control solutions with 32-bit MCUs

TI Piccolo and Delphino platforms presentation for versatility of motor control implementation. On the dvt side, with MathWorks, introduction on simulation concepts using Simulink.

Lecture 3

Powering Intel ATOM: Controllers, FETs plus the Requirements and Tools

We will discuss digital power solutions for high density point of load applications covering digital dc-dc converter solutions (single and multi-phase) and digital sequencing solutions.

Session 4 (15:45 – 17:00)

Lecture 1

New MSP430 Devices for Industrial Applications

Discover new peripherals like USB, new industrial sensor technologies, new devices based on FRAM memory and new integrated LP RF connectivity.

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Lecture 2

High Temperature (200C) & Hi Reliability Products for Avionics/Military/Space/Down hole Applications

Discover TI's solutions for the Avionics and Hi Reliability applications space with enhanced packaging and rigorous qualification, making it possible to design TI hi-rel into a wide range of avionics and military applications in both high end analog, embedded processing and commodity products. Included will also be solutions for the oil & gas exploration industry.

Lecture 3

Digital Power for High Density Multi-Rail point-of-load Applications

We will discuss digital power solutions for high density point of load applications covering digital dc-dc converter solutions (single and multi-phase) and digital sequencing solutions.

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