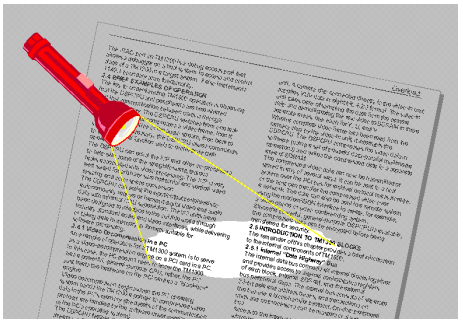
TriMedia CPU core: 1-day class

TriMedia foundation series

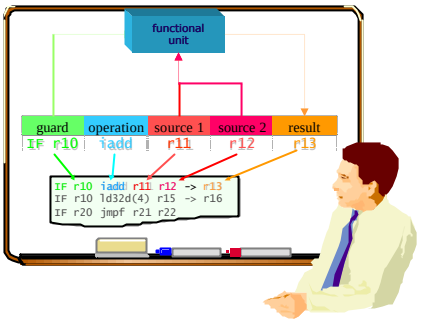
Benefits

Get started quicker, work more productively and produce programs that run faster and demand less hardware, thanks to insight and understanding from this seminar.

The TriMedia core is a powerful and versatile CPU: but it can also be complex and confusing. This seminar offers practical insights into how the TriMedia core works, why it was designed this way, and how to achieve the best performance from TriMedia programs.



Groping in the dark?



Let us enlighten you

Contents

This seminar describes the TriMedia CPU core and explains both why it was made this way, and how to use it well to get the best performance. It includes explanations of the background to and characteristics of VLIW, the instruction design, functional units, and the role of the special internally-parallel Single Instruction Multiple Data (SIMD) units.

System on Chip architecture

This session explains TriMedia in terms of a System on Chip. It includes a review of the characteristics of Media Processing applications, and how the application is mapped to the System on Chip design. It also explains the relationship between the CPU core, the compiler, the peripheral architecture, and the TriMedia Software Architecture.

- Characteristics of Media Processing
- Architectural choices
- Matching SoC to the application
- Mapping the application to the architecture
- TriMedia core architecture
- Peripheral architecture
- Software Architecture

Core architecture overview

Background to VLIW architecture, and the reasons behind design choices in the TriMedia core. Including consideration of the challenges of VLIW parallel scheduling for maximum software efficiency, and background on alternative parallel processor architectures.

- CISC, RISC and Superscalar architectures
- Parallel scheduling
- Speculative execution

Instruction set

The design of the TriMedia instruction set. is crucial to TriMedia's fast performance in media processing applications. This section explains the instruction set design and describes the format of TriMedia instructions.

- Instruction set design
- Instruction format

Registers and data formats

TriMedia's 'register-based' design including details of registers and of supported data formats.

- Registers and data formats

Functional units

The types of functional units available and their purpose. Including initial consideration of optimization strategies, and how to measure functional unit usage and efficiency.

- Functional units overview
- Functional unit schedule report
- Functional unit example

Software tools

Review of the TriMedia software tools and their purpose in programming and optimization. Including consideration of simulation and scheduling.

- Compilation tools
- Scheduling
- Simulator
- Debugger

Cache

Introduction to the cache architecture and its impact on performance and optimization.

- Cache architecture overview

Interrupts

Introduction to interrupt programming.

- Interrupts
- Interrupts and decision trees
- Interrupt configuration
- Interrupt programming

Internally-parallel units

Single Instruction Multiple Data (SIMD) units can accelerate media processing applications by a factor of four. This section introduces the SIMD units and shows how they are used.

- SIMD operations overview

Time and arrangements

This 1-day seminar is presented 'on-site' by arrangement - the material can be adapted if you have specific needs (at extra cost). We recommend that it be presented as part of the 4-day 'TriMedia foundation' seminar series which gives a thorough grounding in TriMedia core, cache, optimization, peripherals and software architecture.

Class schedules are posted on the Internet from time to time:

- http://www.bores.com/schedule.htm

TriMedia CPU core class

- 1-day seminar presentation
- £330 (€550, $660) per person
- on-site by arrangement

TriMedia 'foundation' series

- 4-day seminar series
- £1,320 (€2,200: $ 2,640) per person
- on-site by arrangement

To book or find out more

Call us by 'phone or send email to book or to ask questions.

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TriMedia foundation seminars

The 'TriMedia foundation' is a series of four 1-day classes designed to give a thorough understanding of all aspects of the TriMedia. The series can be followed as a single series of four 1-day classes or by taking separate 1-day classes.

- TriMedia CPU cores
- Nexperia peripheral architectures
- TriMedia software optimization
- TriMedia Software Architecture

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