TriMedia tm2270 CPU core: a 1-day class
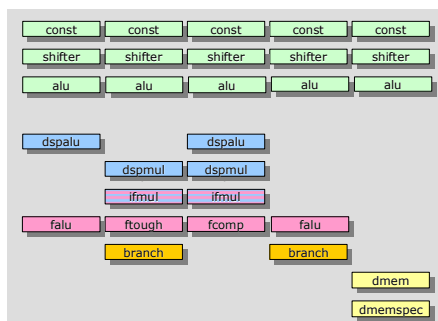
TriMedia Extension
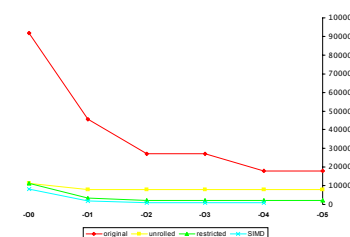
BORES
Signal Processing
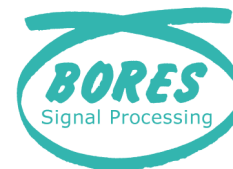
Benefits

- Understand the tm2270
- Exploit new tm2270 features
- Optimize tm2270 programs

Learn about the new low-power tm2270 TriMedia core. Understand its innovative features and how to take full advantage of them..

const	const	const	const	const
shifter	shifter	shifter	shifter	shifter
alu	alu	alu	alu	alu

dspalu   dspalu
dspmul   dspmul
ifmul   ifmul
falu   ftough   fcomp   falu
branch   branch
dmem
dmemspec

Small efficient core

Effect of manual and compiler optimizations

Get the best performance

Contents

This session describes the TriMedia tm2270 core and the innovative features it introduces.

TriMedia system context

Understand the context and scope of the TriMedia architecture, and how the design relates to its target applications.

- system context and scop
- streaming media
- TriMedia architecture
- software architecture
- hardware architecture
- SoC architecture
- CPU core architecture

TMA3 core architecture

Learn about the new TMA3 TriMedia core architecture and how to apply it.

- TriMedia VLIW RISC architecture
- TMA1 and TMA2
- TMA3 architecture
- Cache architecture

Instruction set overview

Understand how the TMA3 instruction set. design increases speed for H.264, and learn to apply the new SIMD custom operations.

- Instruction set design
- Instruction format
- Custom operations
- new TMA3 operations
- unaligned load/store
- new SIMD for H.264

CPU functional units

Know the types of functional units available and their purpose: consider basic optimization strategies, and know how to measure functional unit usage and efficiency.

- CPU functional units
- Measuring functional unit usage
- tm2270 functional units
- tm2270 load/store architecture

Compilation tools

Know how to use the TriMedia compilation tools including for profiling, debugging and simulation.

- The compilation tool chain
- Schedule and profile reports
- Simulation and debugging

Cache architecture

Understand the tm2270 cache architecture and its impact on performance and optimization.

- Cache architecture overview
- tm2270 data cache
- software and hardware prefetch
- region-based prefetch

tm2270 optimization

Learn effective strategies for optimization.

- cache optimizations
- scheduling optimizations
- custom operation optimizations

Time and arrangements

This session takes 1 day.

It is presented 'on-site' by arrangement - the material can be adapted if you have specific needs (at extra cost).

Sometimes we arrange 'public' classes: schedules are posted on the Internet:

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

Pic'N'Mix

We offer a range of classes that can be combined to cover the topics that are of interest to you. This class can be combined with others or can stand alone - we are happy to advice on which combinations make sense.

Contact us for details:

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Booking and questions

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- contact: Dr Chris Bore
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- mobile: +44 (0)7921 153219
- email: chris@bores.com

Foundation class

This class is designed for people who already know a bit about TriMedia.

For an introduction to the tm2270 and other TriMedia topics, we recommend our TriMedia Foundation class - which covers the topics of the tm2270 class but with the surrounding context too.