Slot-Level Time-Triggered Scheduling on COTS Multicore Platform with Resource Contentions [Δ]

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[Δ] Work supported by ARTEMIS project 621429 EMC²

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  - Used in many safety-critical domains like avionics
  - Benefits: system-wide determinism, ease of certification, reduced costs etc.

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Combine benefits
&
Use in next-generation Integrated Modular Avionics (IMA)

Problem & Challenges

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- Runtime mechanism that upholds offline guarantees
- **Find** valid offline **schedule**

System Model: Freescale QorIQ P4080

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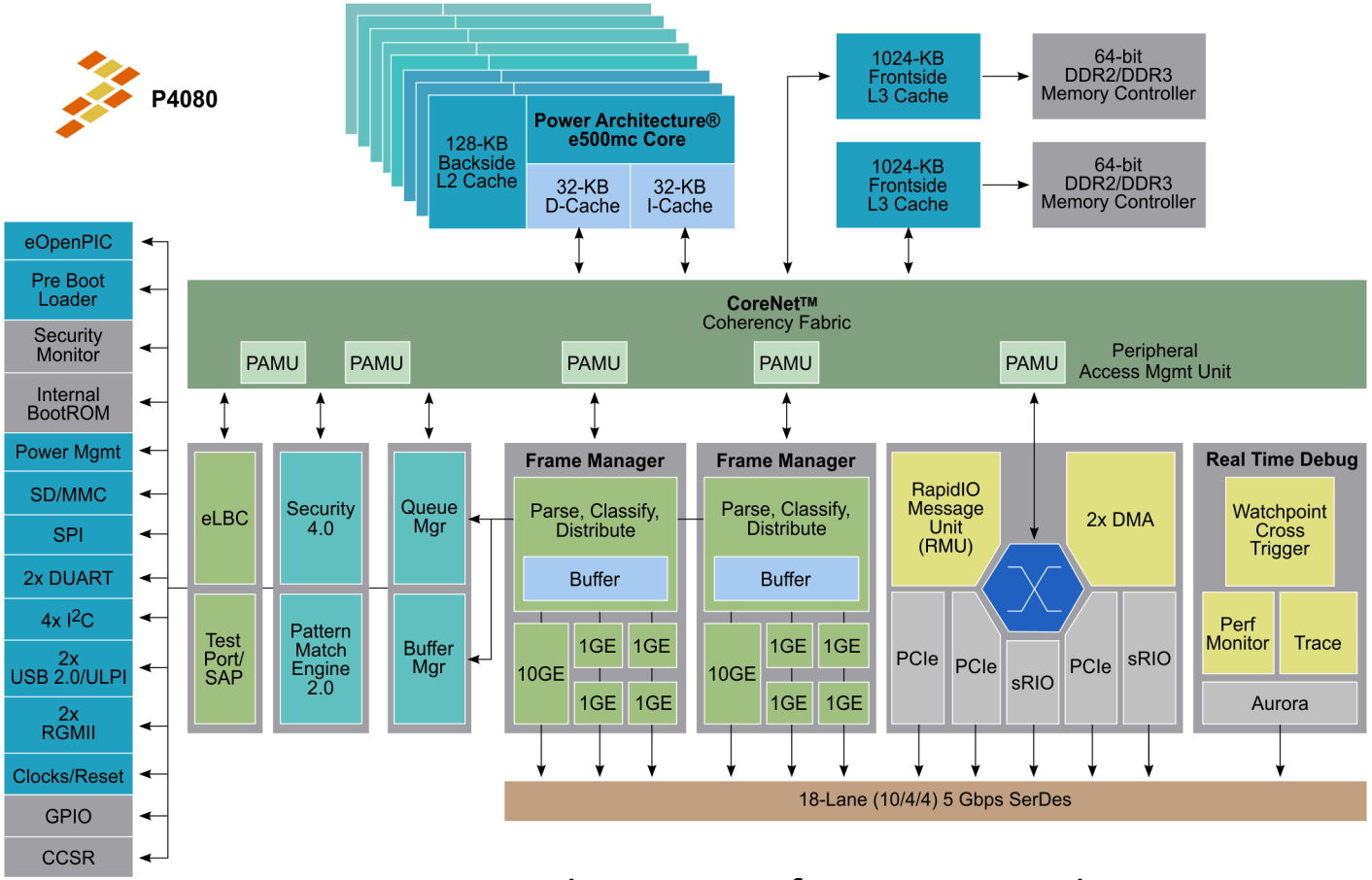

Source: Freescale P4080 Reference Manual, Rev. 3.

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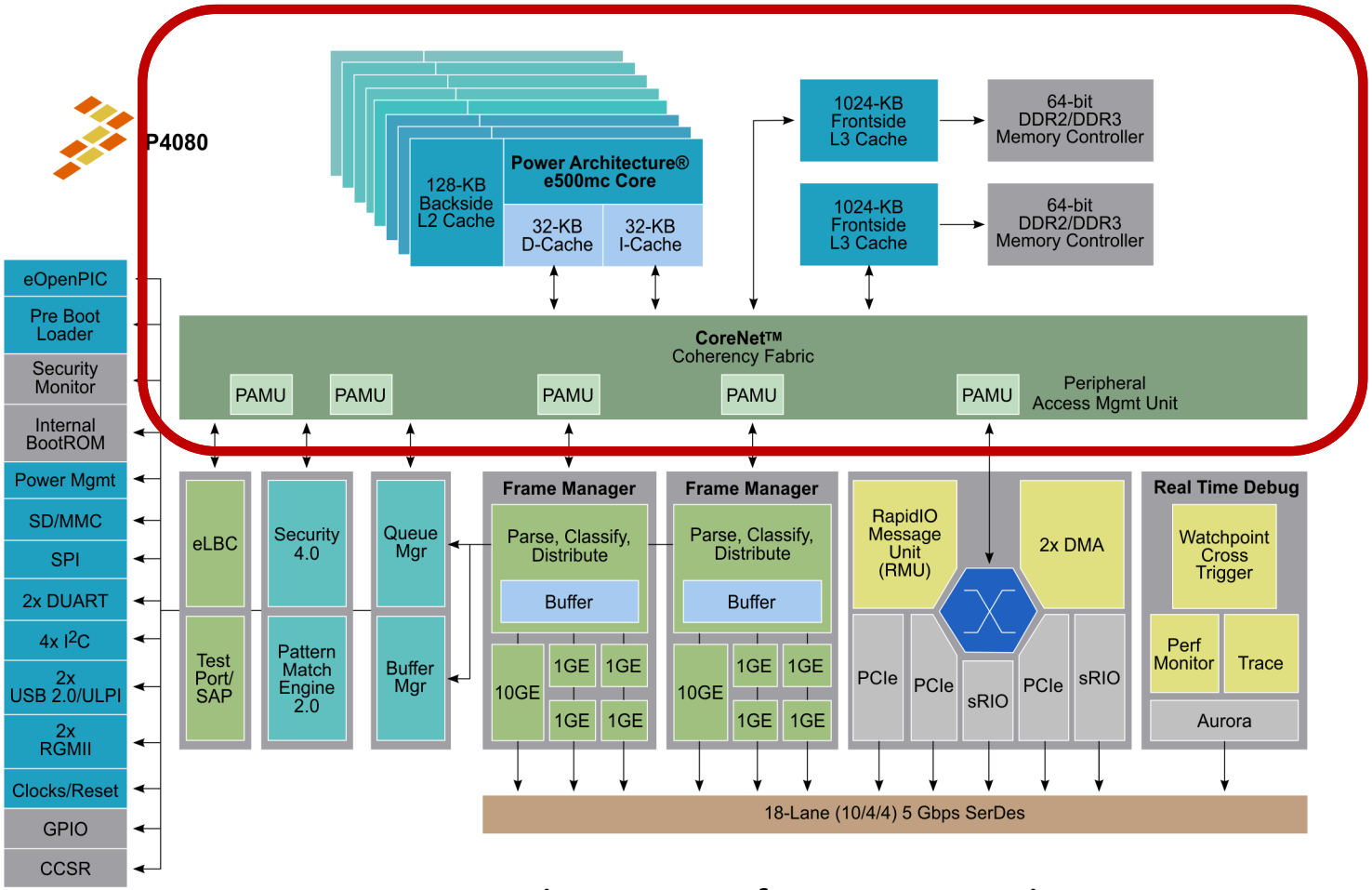

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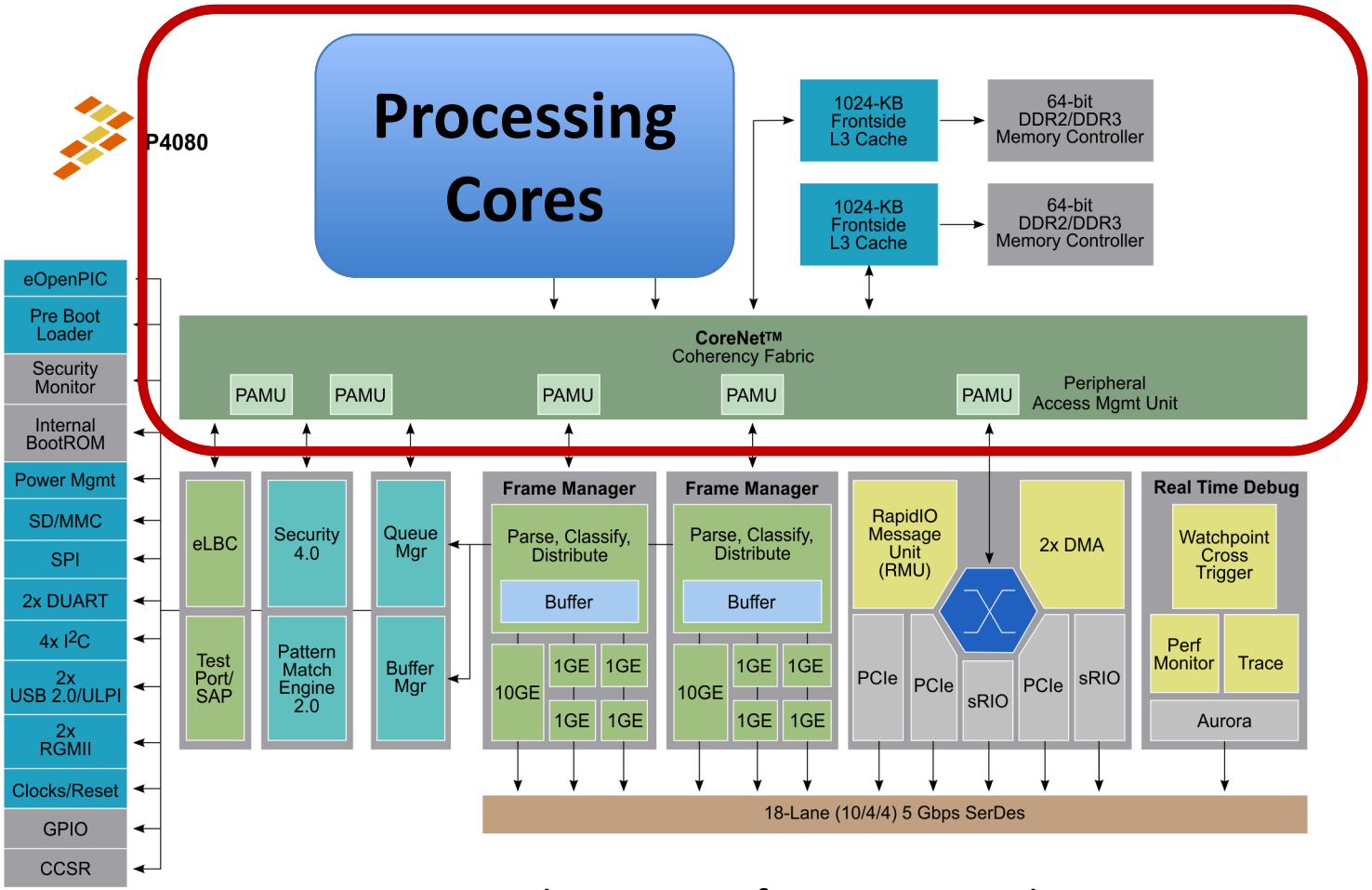

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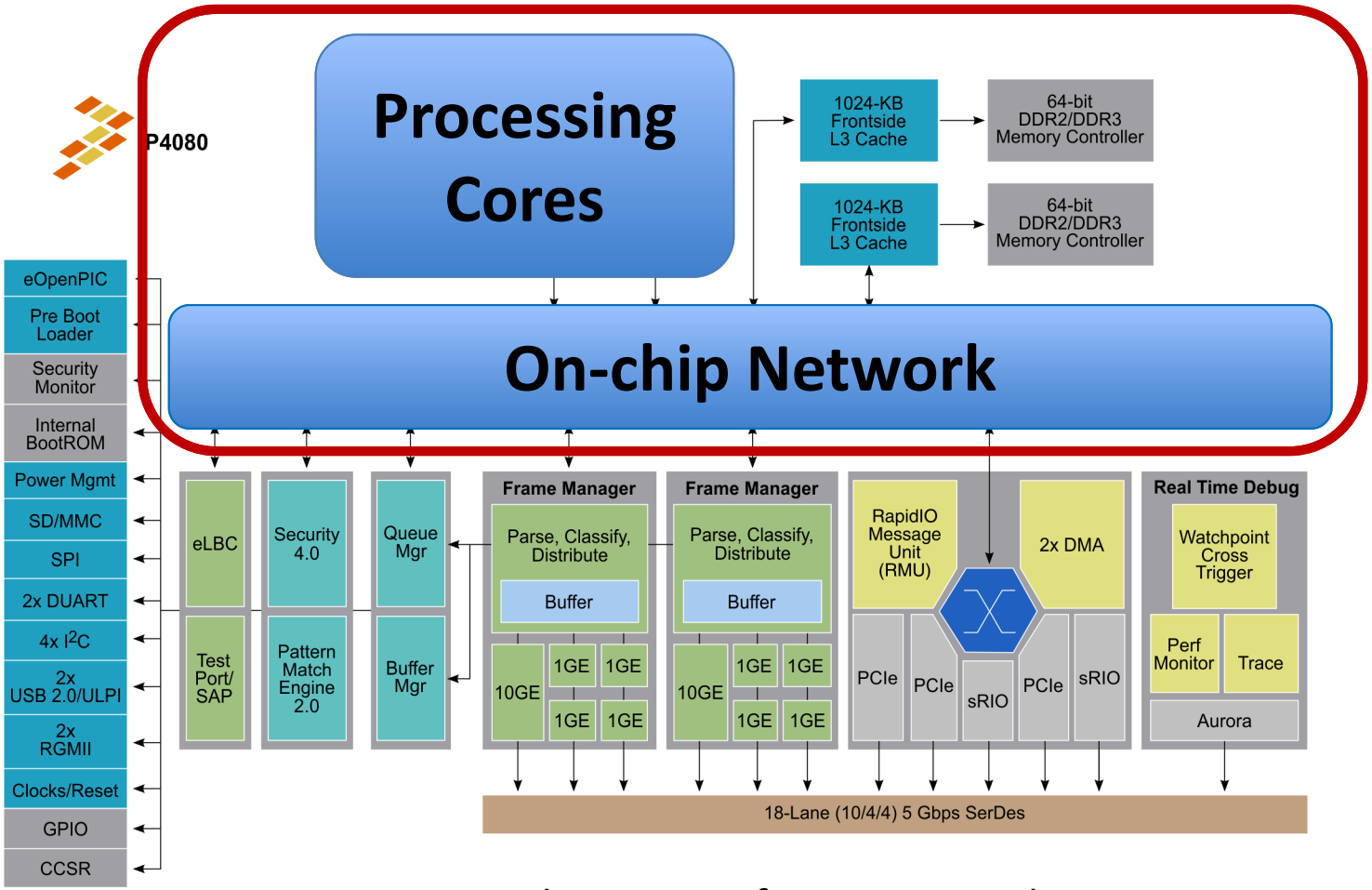

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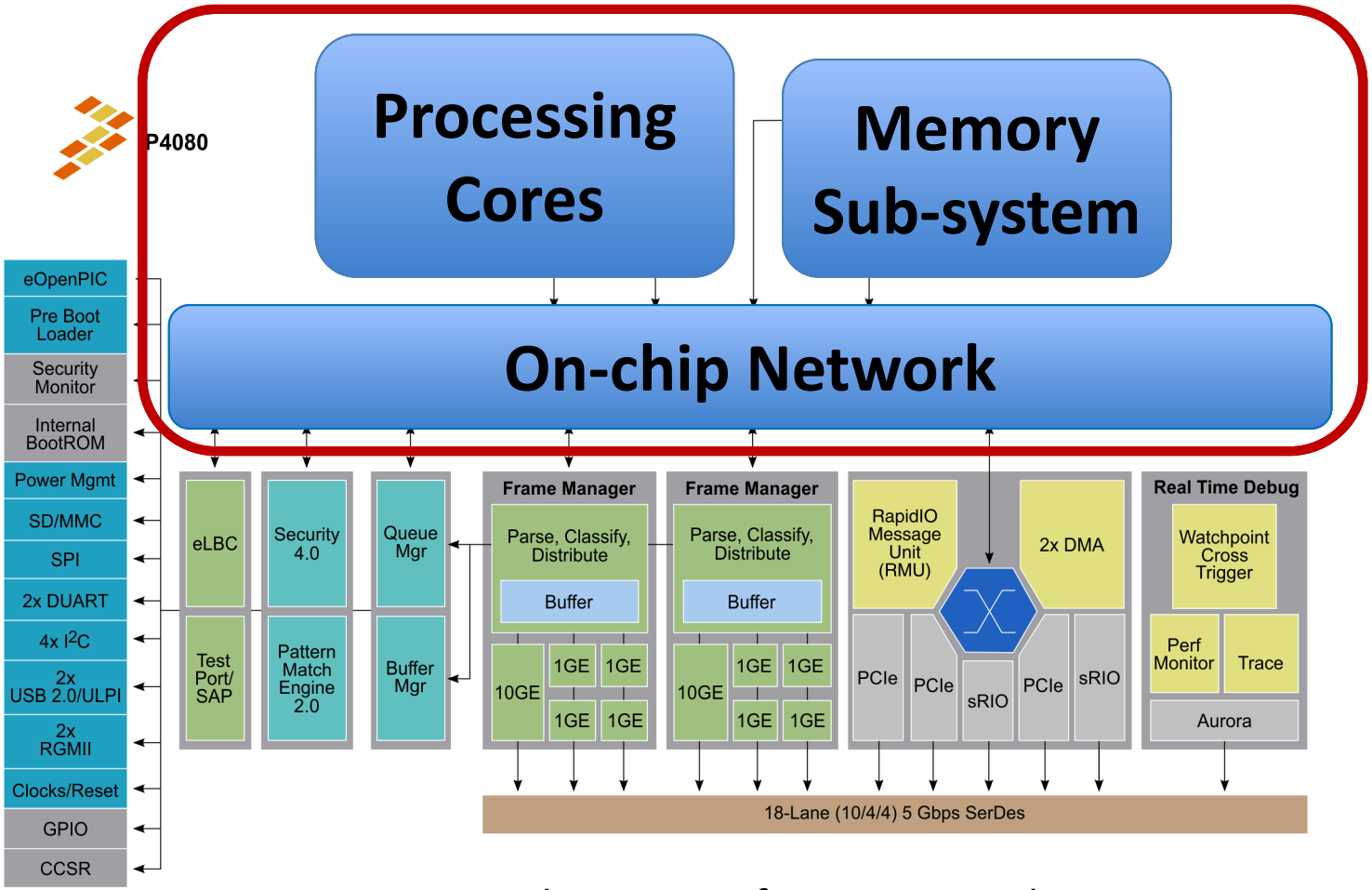

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  - **Runtime**

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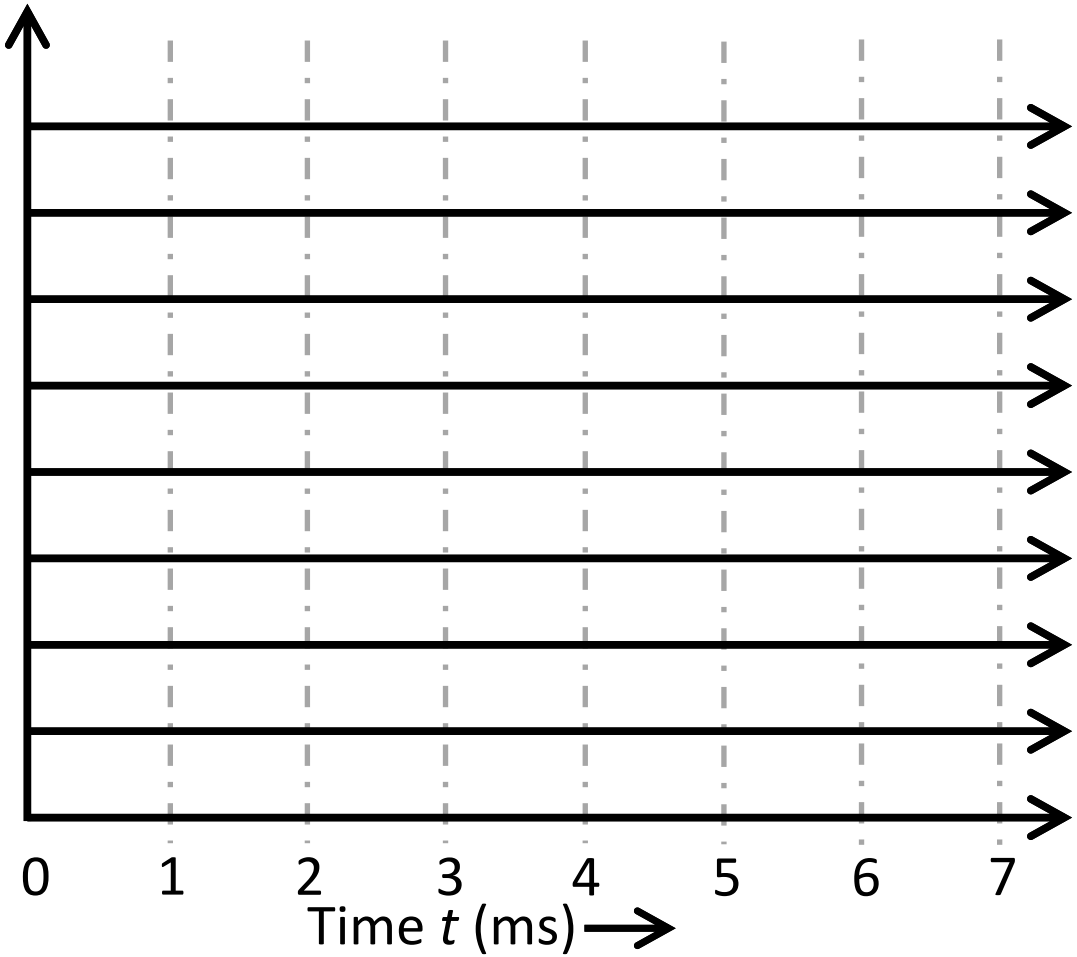

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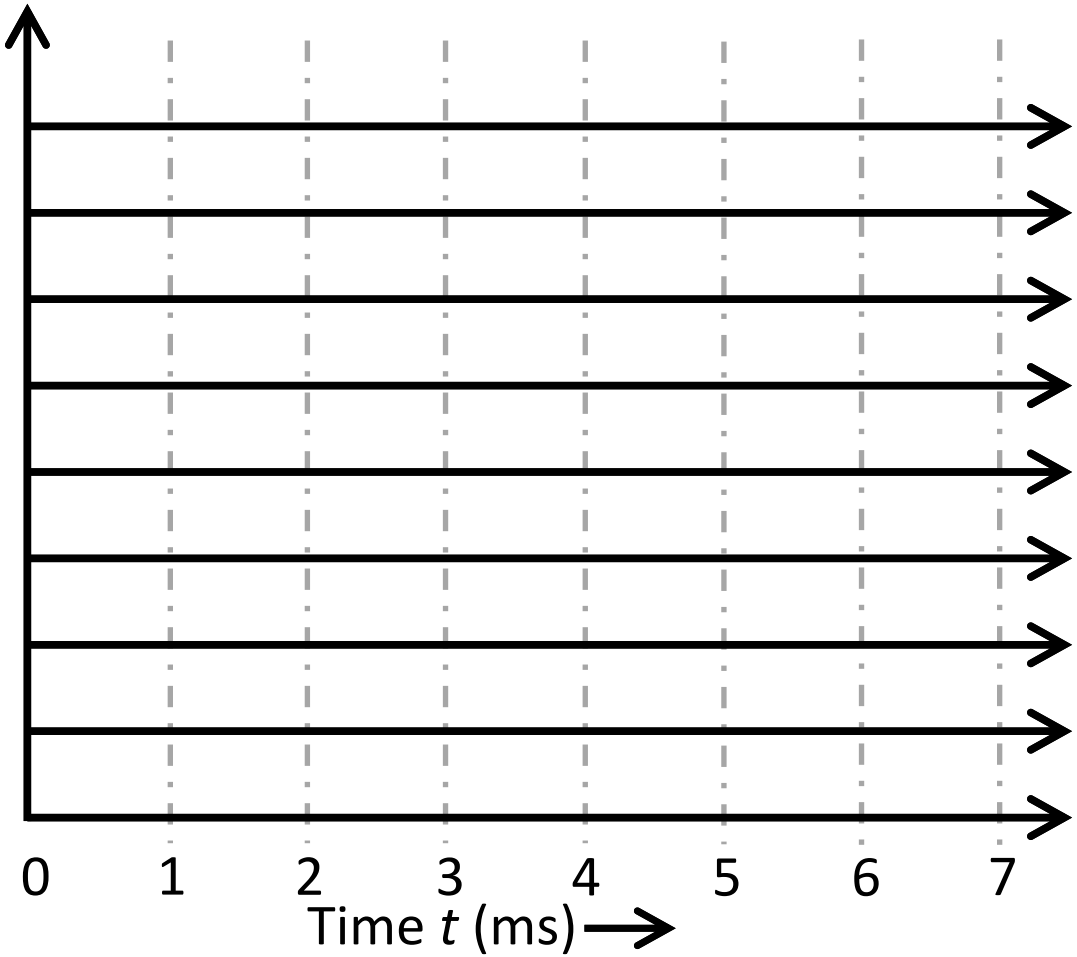

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  - N cores

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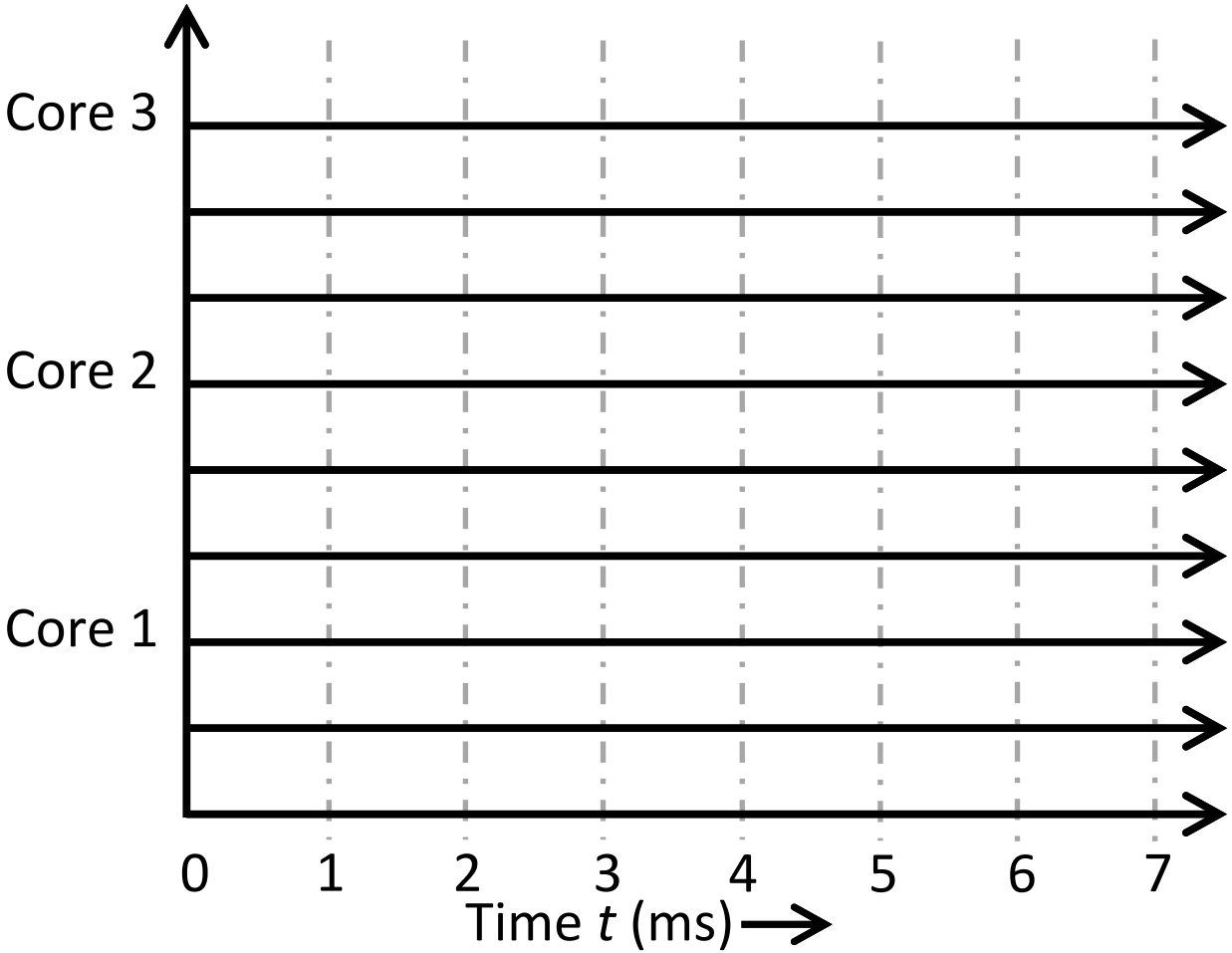

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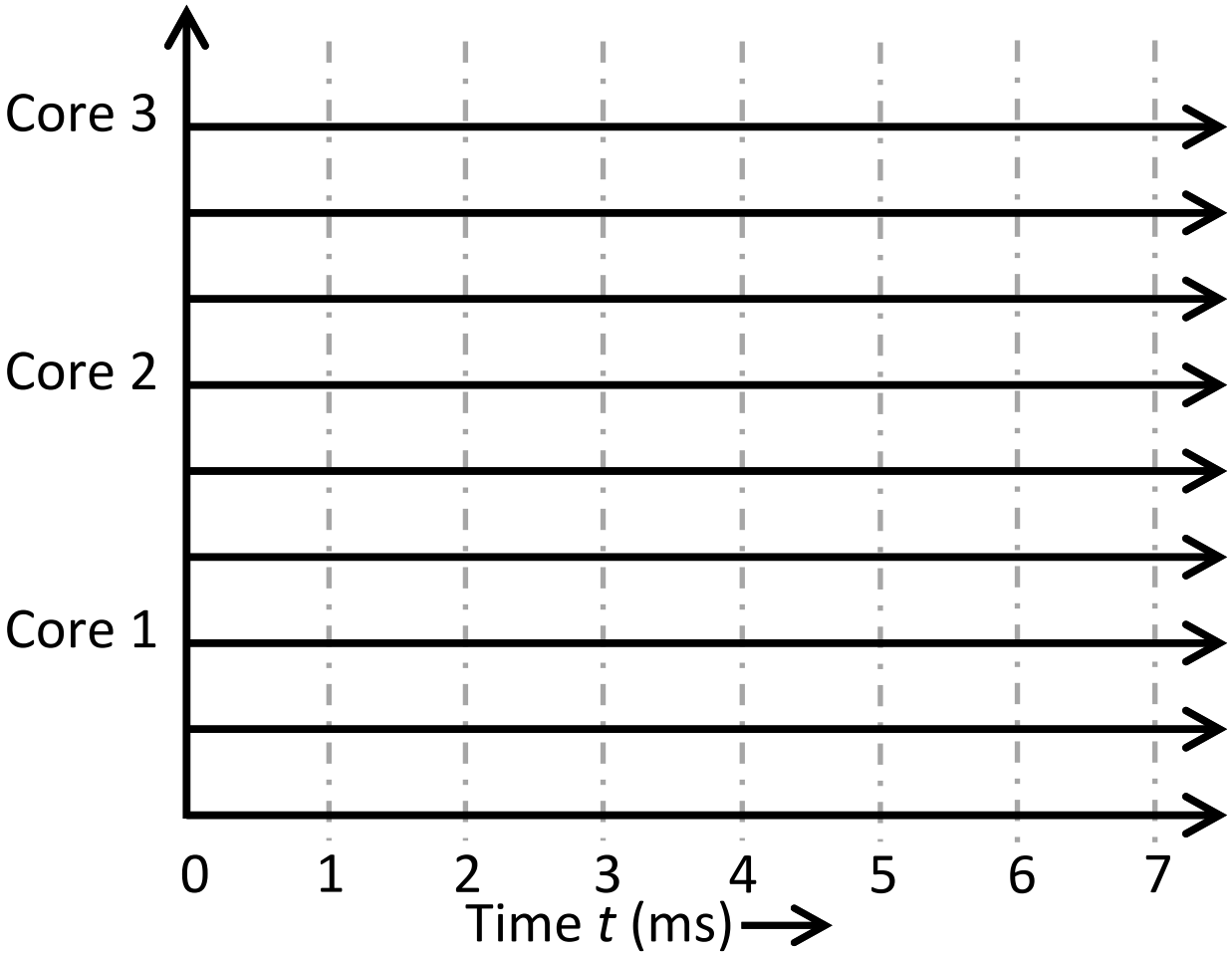

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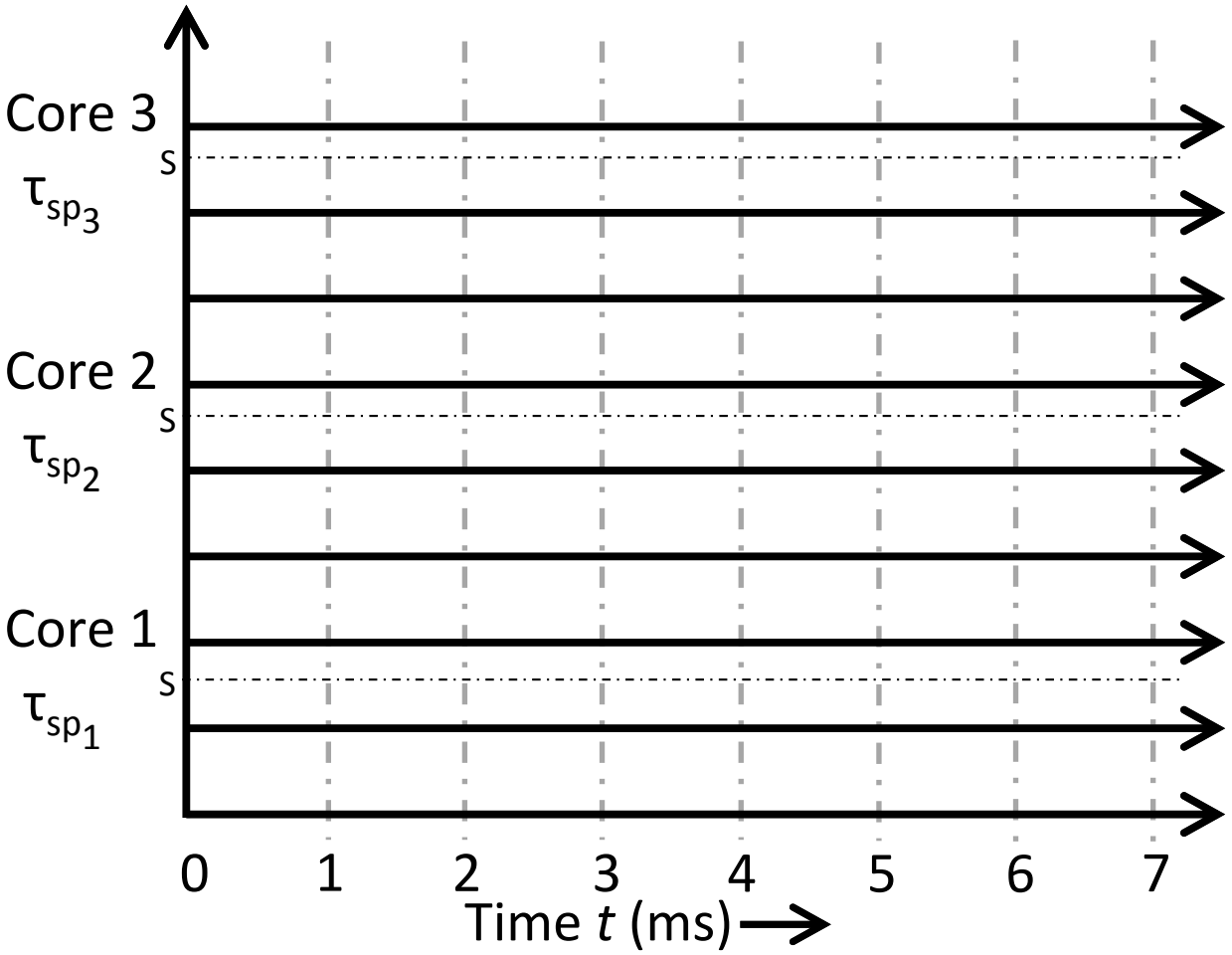

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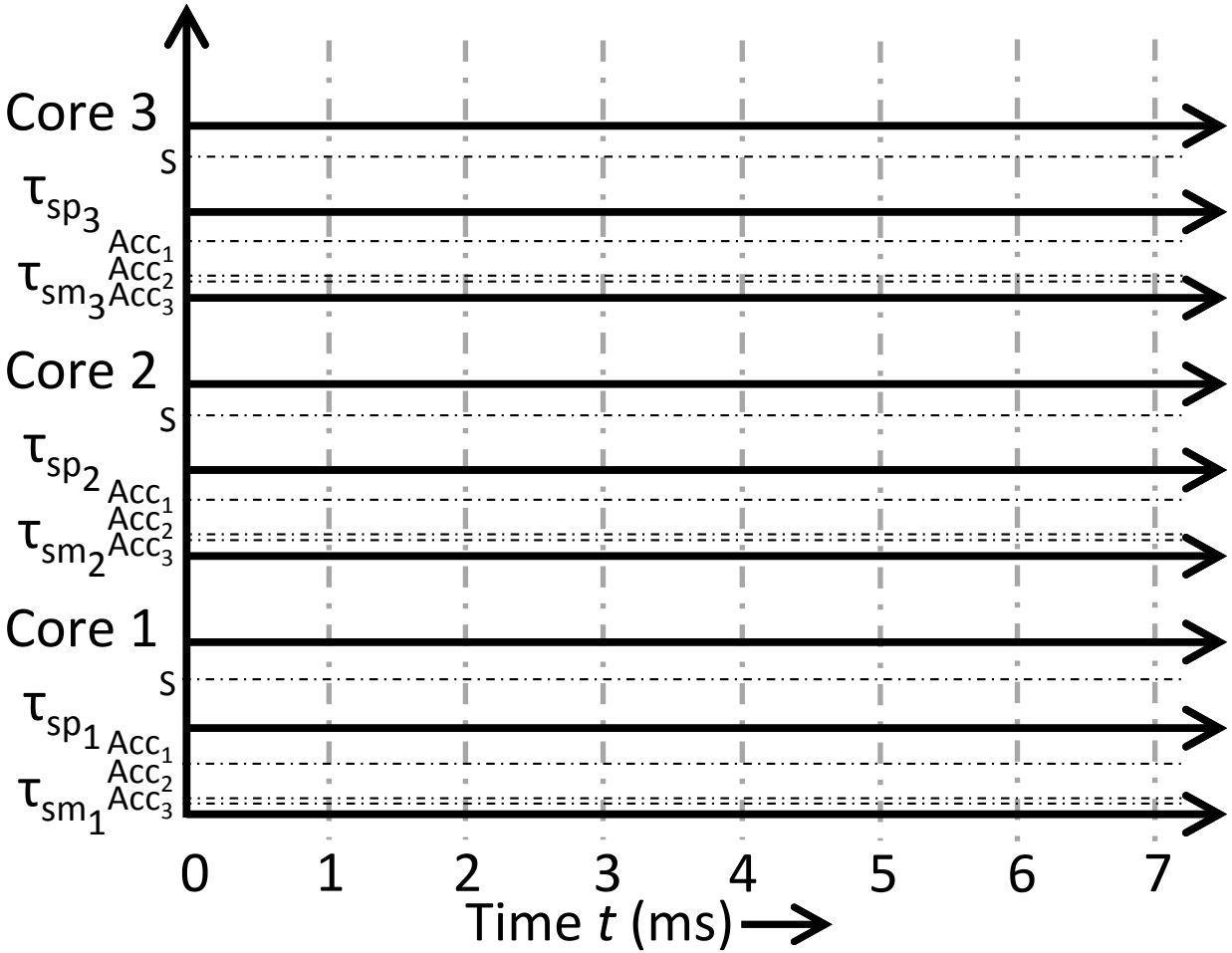

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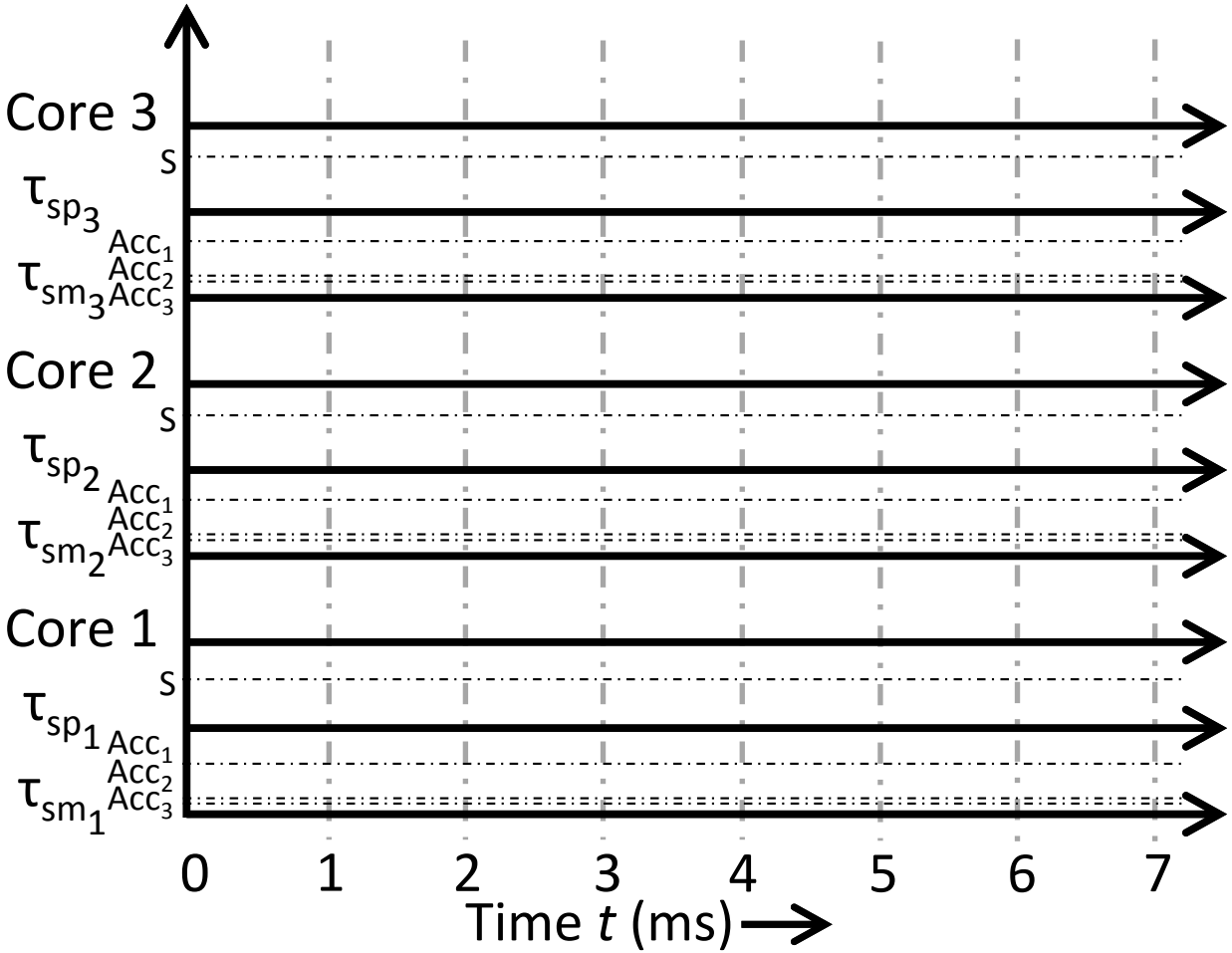

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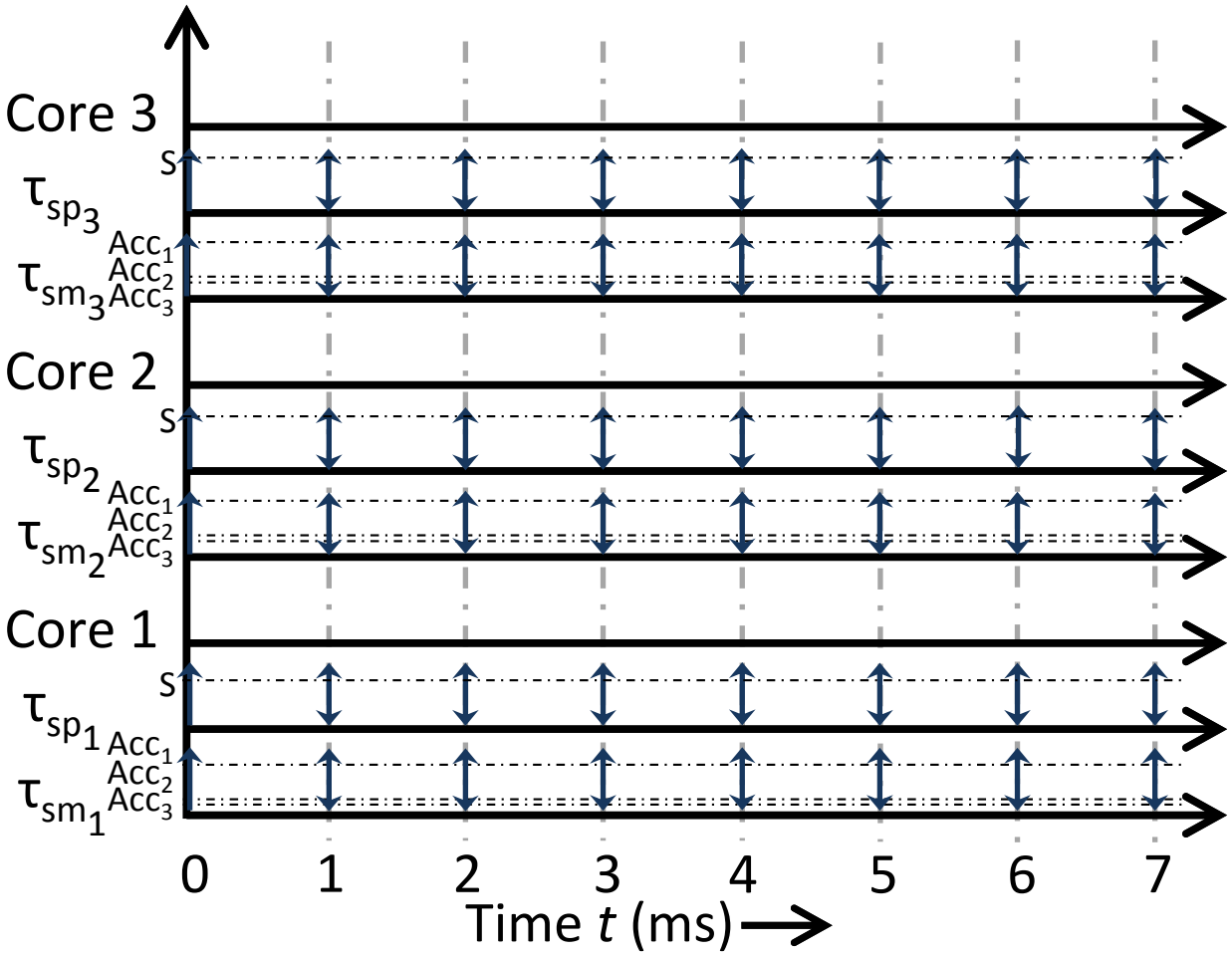

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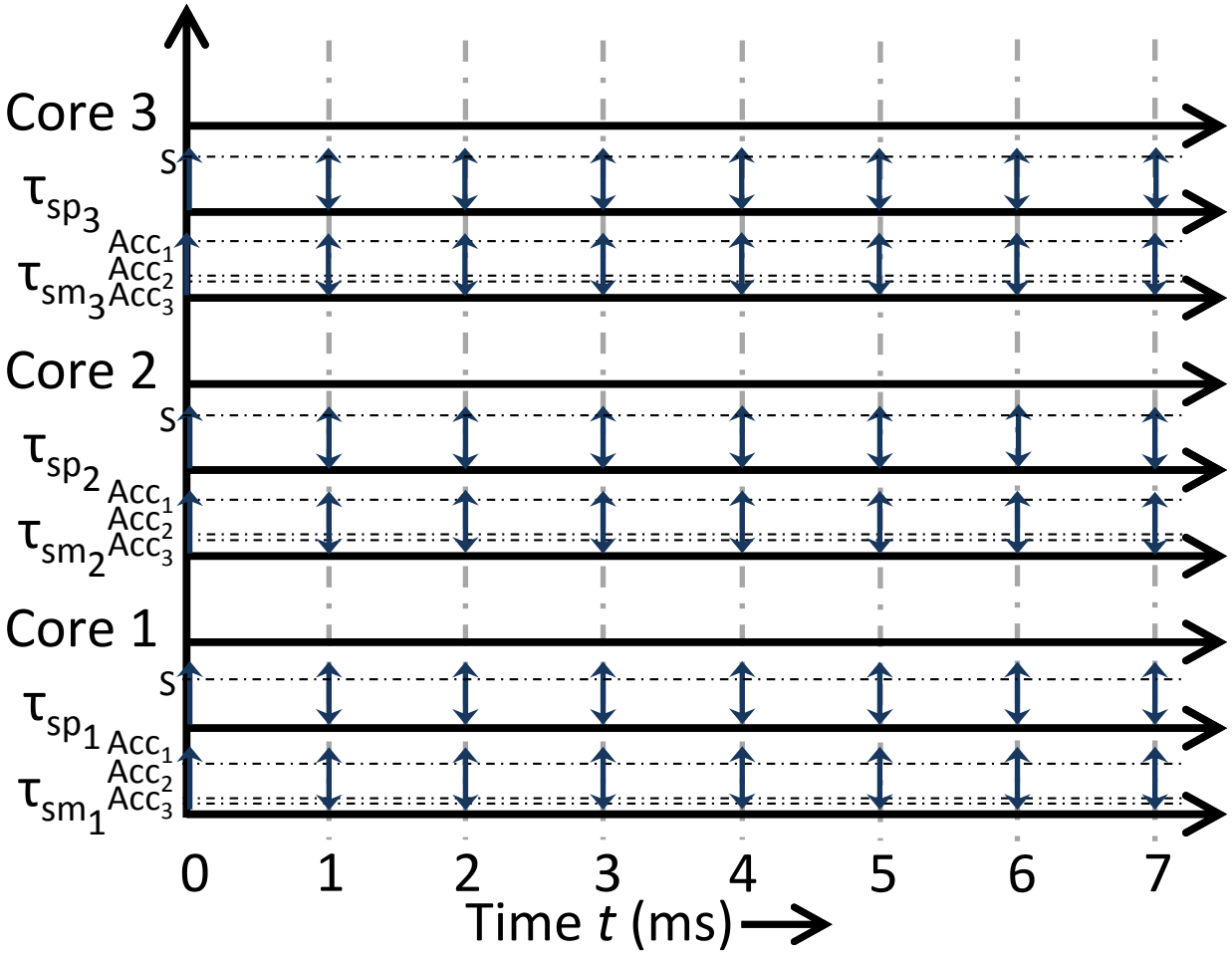

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  - Regulates contention & latency

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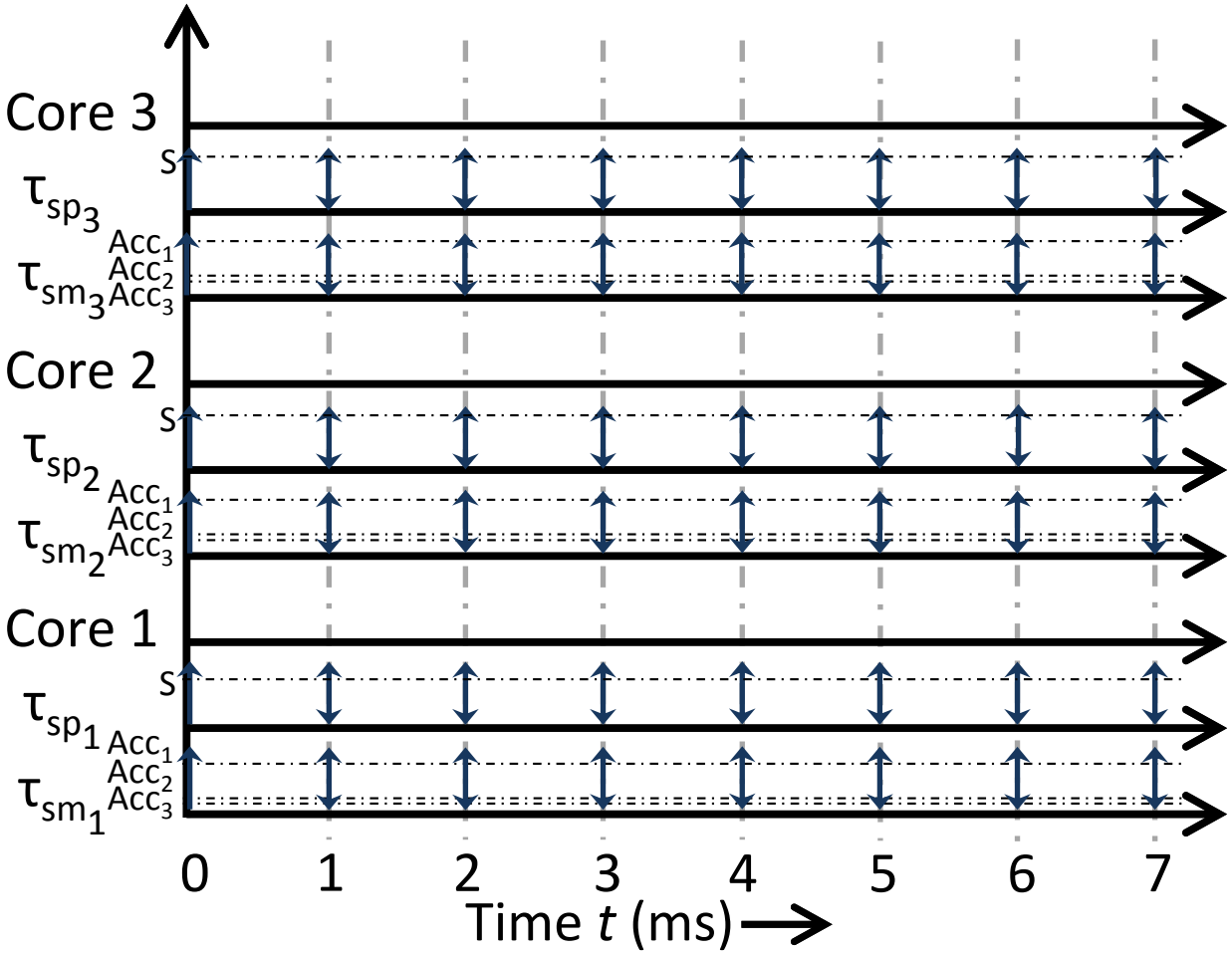

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- Phase 2

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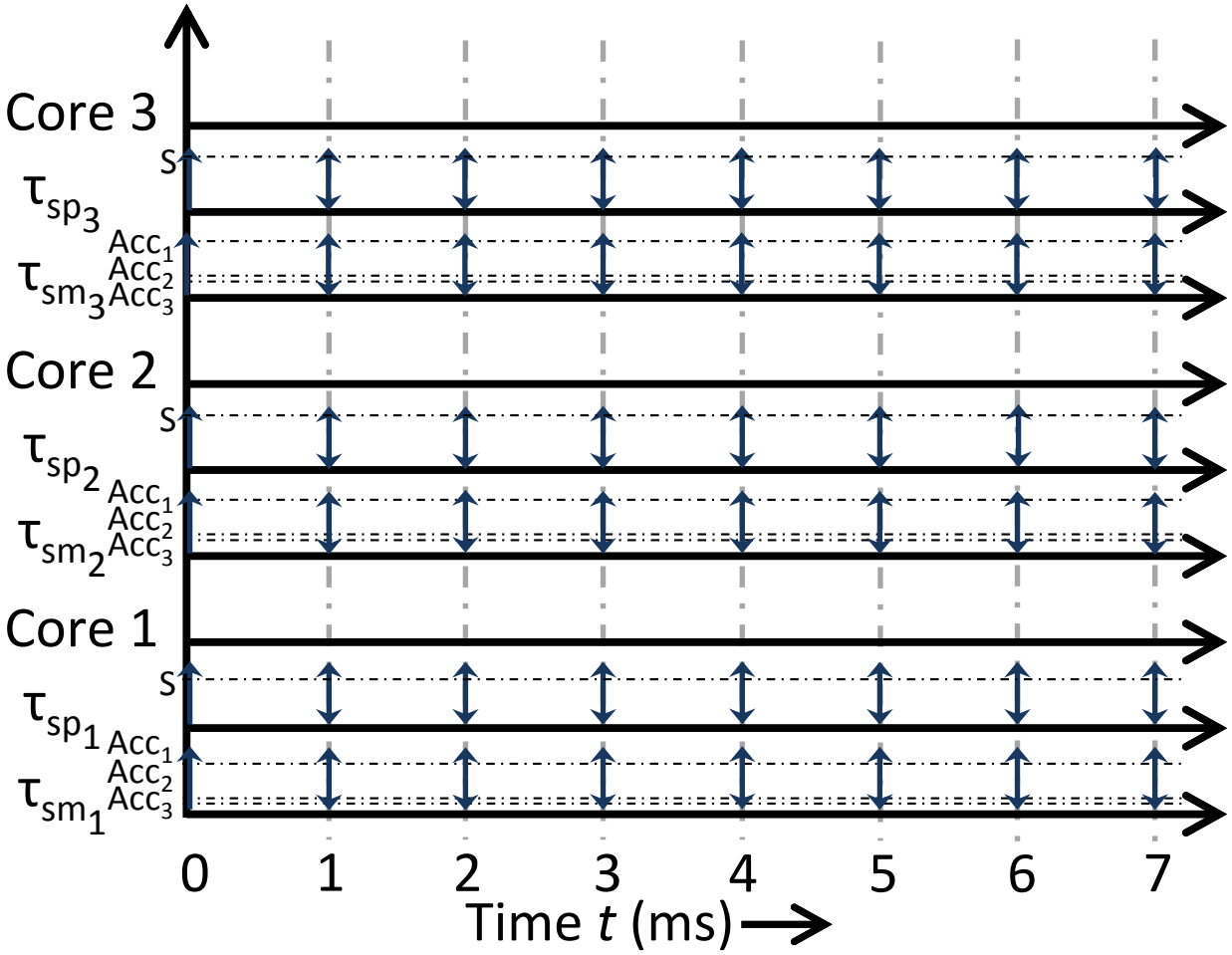

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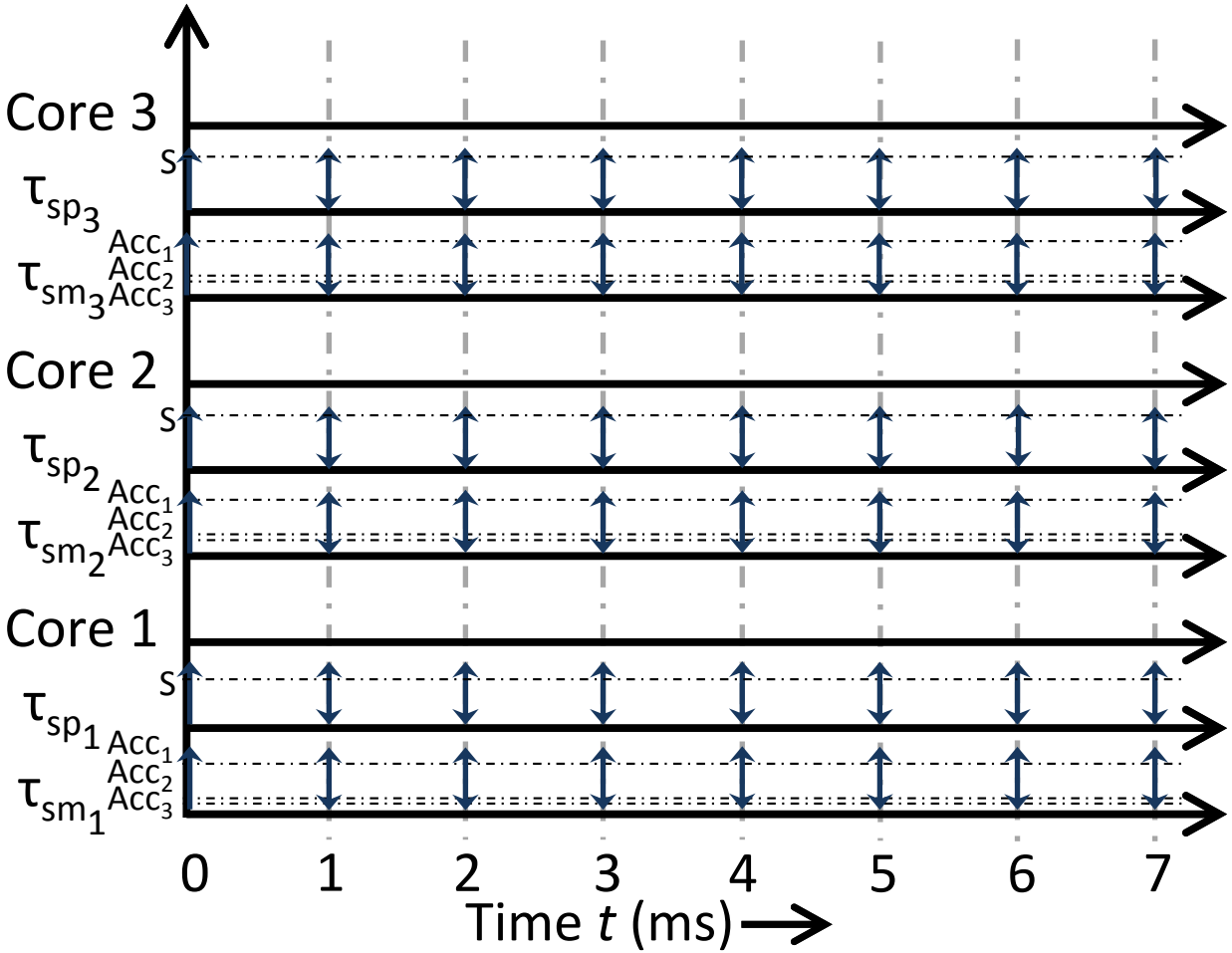

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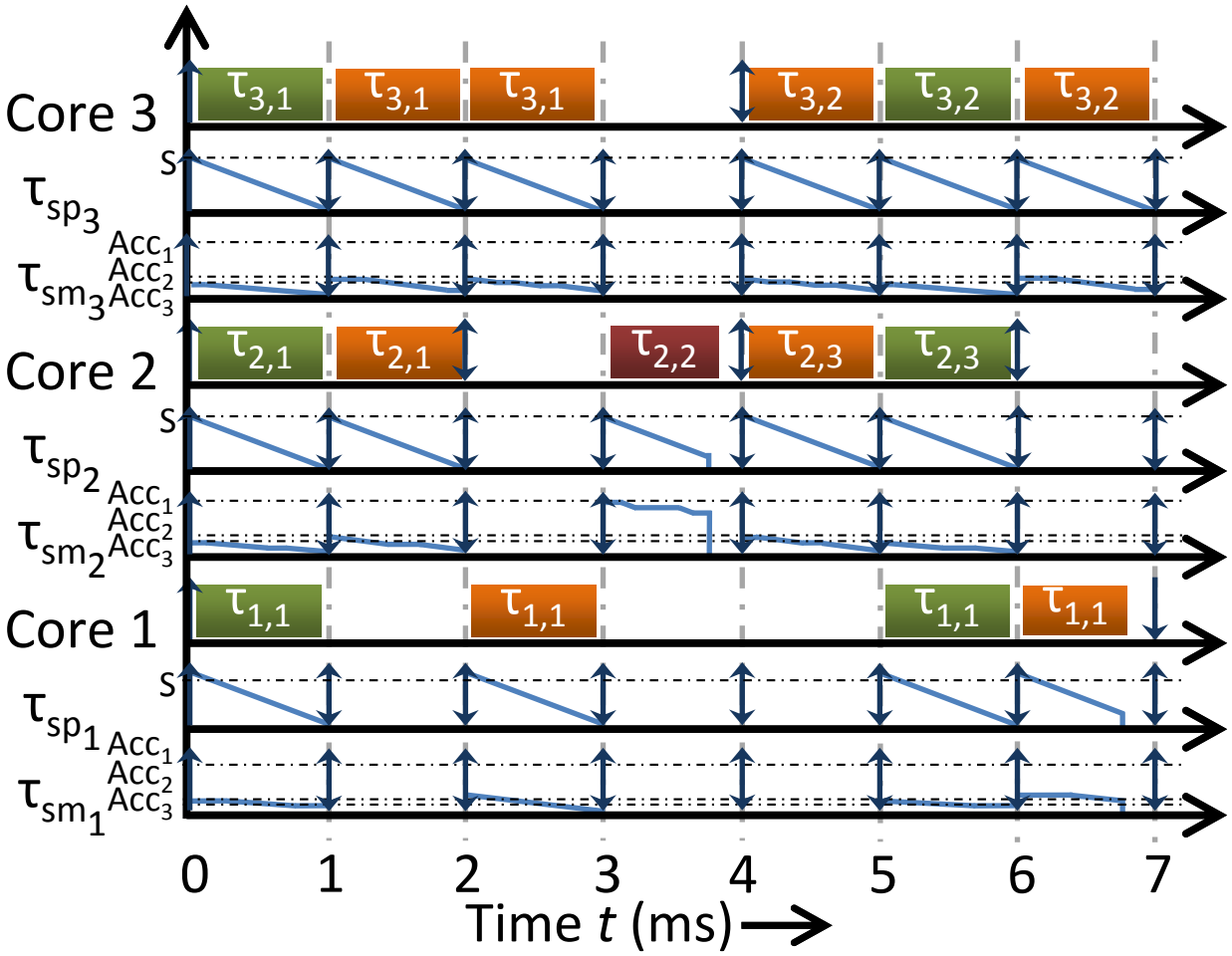

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- Bounds variability in ET considering specified

Initial step towards enabling TT scheduling on COTS multicores

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Questions?

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Thank You!