Scheduling Heterogenous Multi-cores

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Guide: Prof XX

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Motivation

- Applications with distinct requirements run on a single processor.
- To satisfy applications' distinct requirements efficiently industry has been making heterogeneous cores.
- Many Commercial products like ARM's big.LITTLE, NVidia's Kal-El have heterogeneous cores on a single chip.
- Heterogeneous cores enable higher performance for a given power budget [1].
- Samsung's Galaxy S uses ARM's big.LITTLE architecture with quad-core Cortex-A7 and quad-core Cortex-A15.

Performance Efficient CPU	Cortex-A15 (OoO)
Power Efficient CPU	Cortex-A7 (InO)

Table: ARM's big.LITTLE: Heterogeneous Cores

[1] S. Borkar and A. A. Chien, The future of microprocessors, *Communications of the ACM*, vol. 54, 2011

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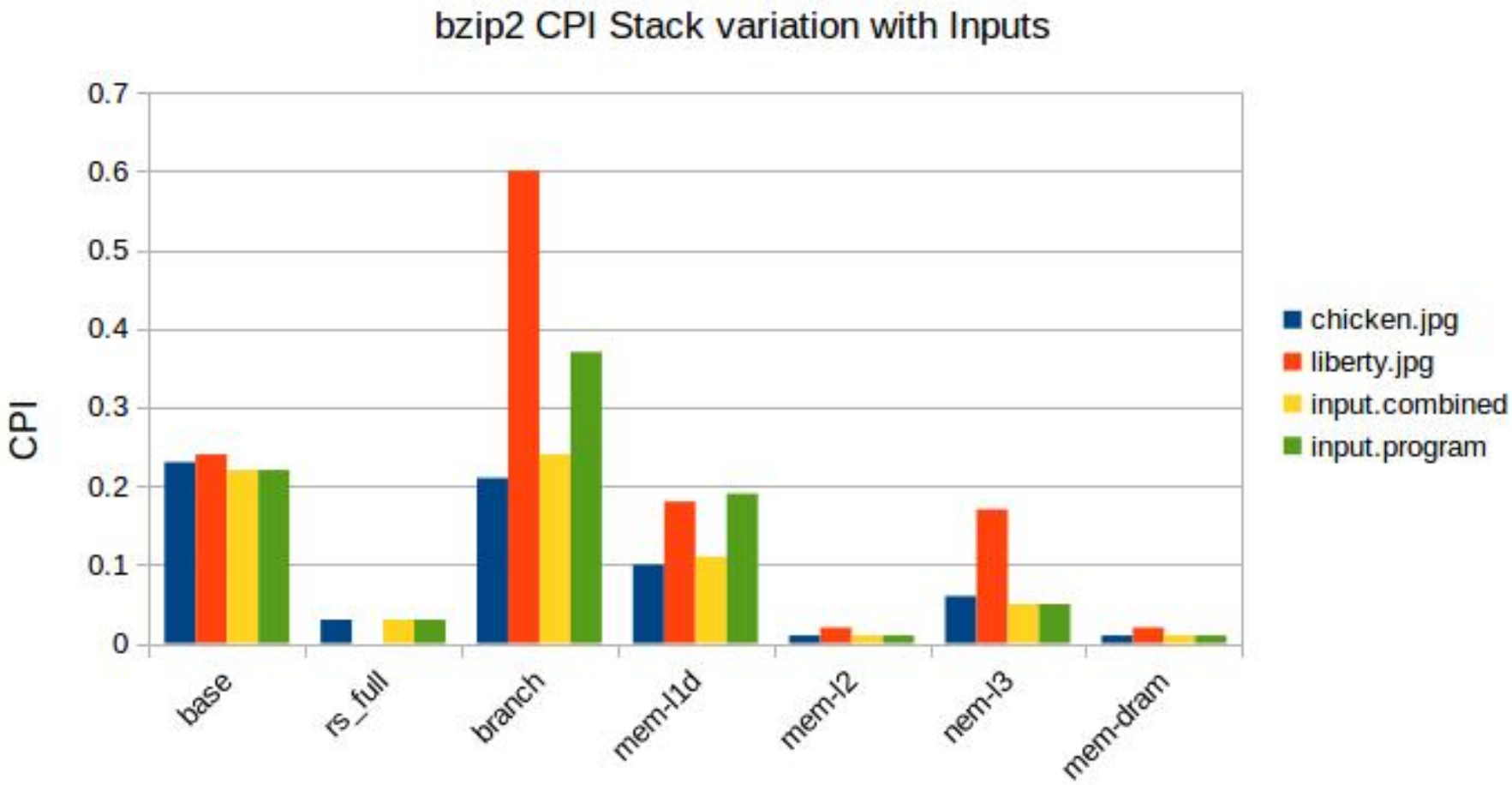

Figure: Energy delay product for SPEC 2006 Benchmarks

References

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Thanks