Skeleton Automata for FPGAs: Reconfiguring without Reconstructing
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High Expressiveness at Minimal Reconfiguration Cost
- query expressiveness
- off-line query-to-circuit compilation
- existing approaches
- skeleton automata
- on-line query workload changes
- reconfiguration speed

Skeleton Automata:
- high query expressiveness and dynamic query workloads
- skeleton automata for XML projection

http://www.systems.ethz.ch/research/projects/avalanche/
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Hardware
Input Filtering
Software
Query Execution

Hardware projected document

for $p$ in doc('auction.xml')//person return
<person>{$p/name}
<num-interest>{count ($p/profile//interest)}
</num-interest></person>

Skeleton Automata: Separate Structure from Semantics
- XPath spec.
- static part (off-line)
- dynamic part (runtime)

Effects of Projection on Saxon-EE

Parsin Time
Execution Time
Memory Consumption
Software Proj.

XMark query

Speedup
Improvement in Memory Cons.