THE CENTER FOR AUTOMATA PROCESSING

Automata Processing

Summary

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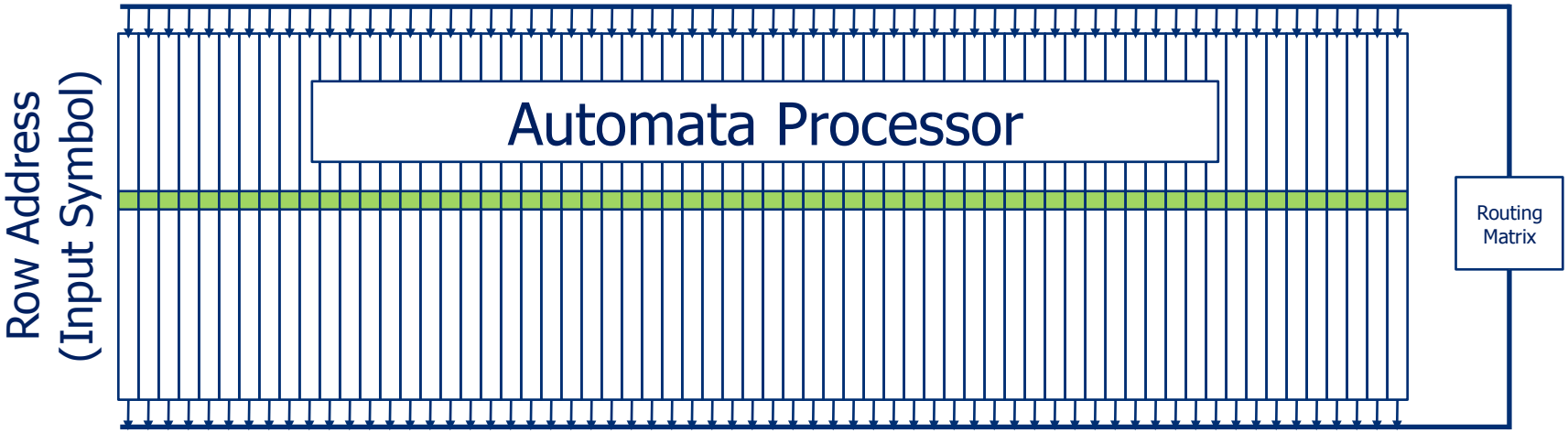
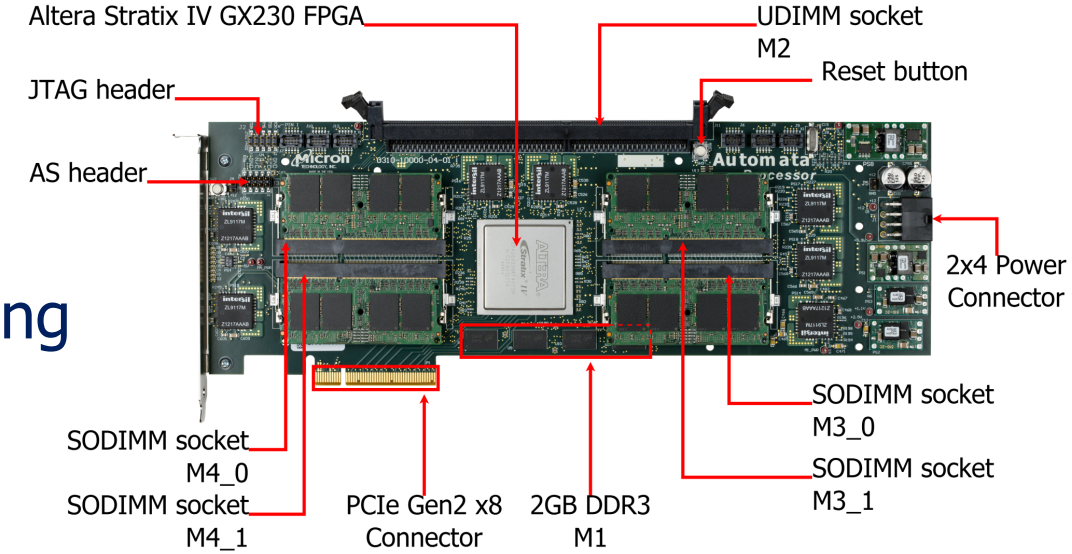
Focused on Memory | Engineered for Innovation

Architecture of the AP



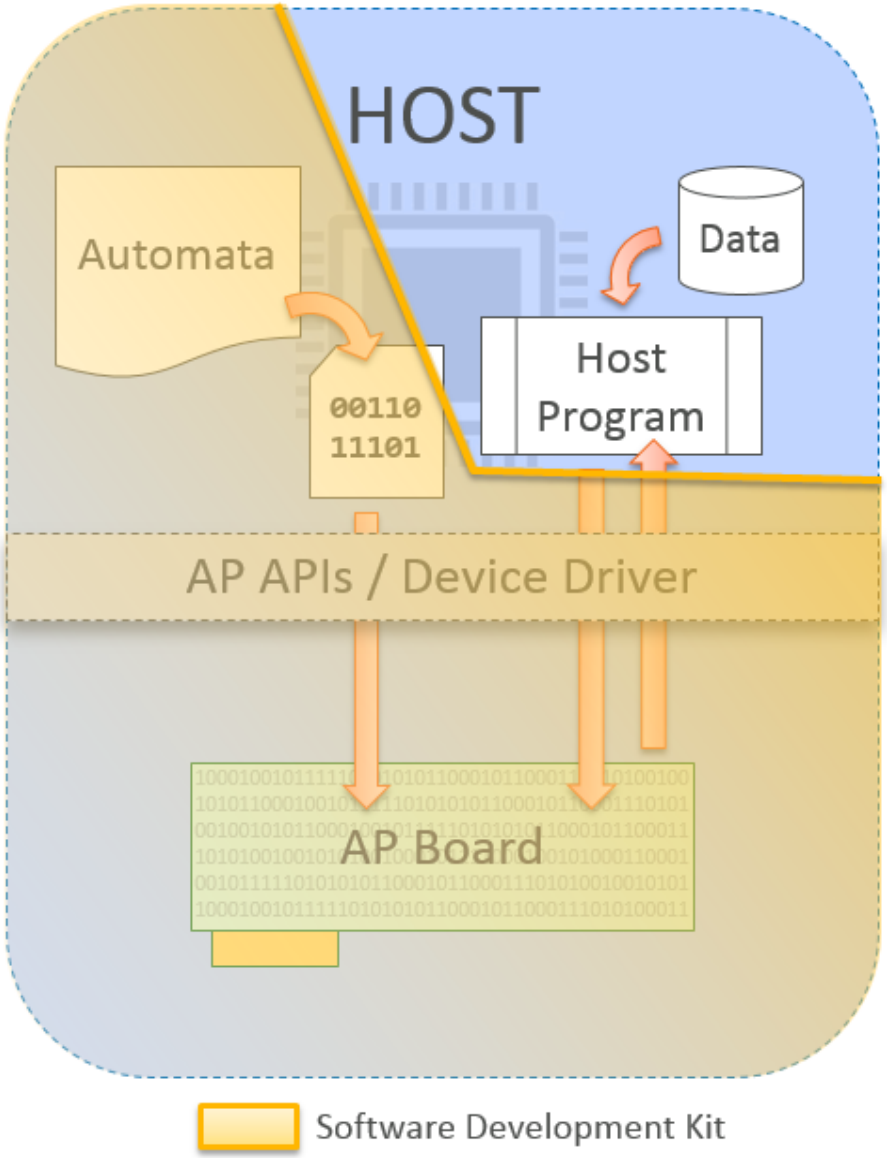
Row Access results in **49,152** match & route operations
(then Boolean AND with "active" bit-vector)

- Implements NFAs natively in hardware
- Non-determinism very powerful for fuzzy matching
- Massive parallelism

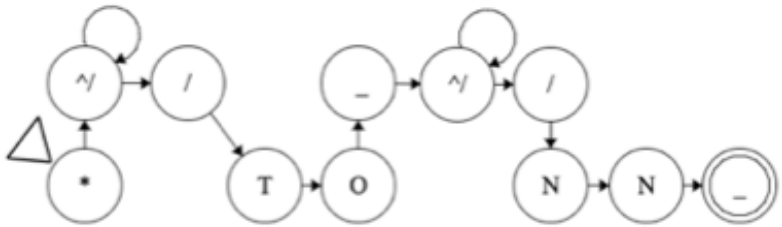


Programming on the AP

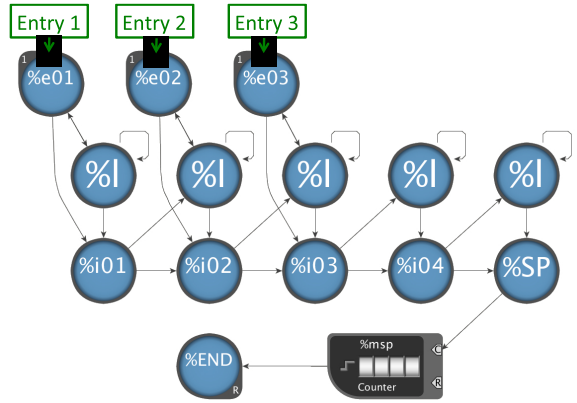
- APIs
  - Design API
  - Compiler API
  - Runtime API
  - Application-specific APIs
- Workbench
- Command-line tools
- Device driver



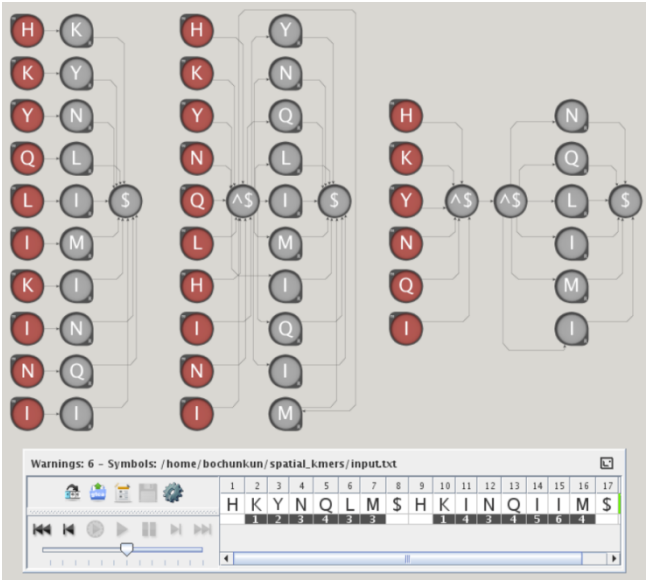
Applications



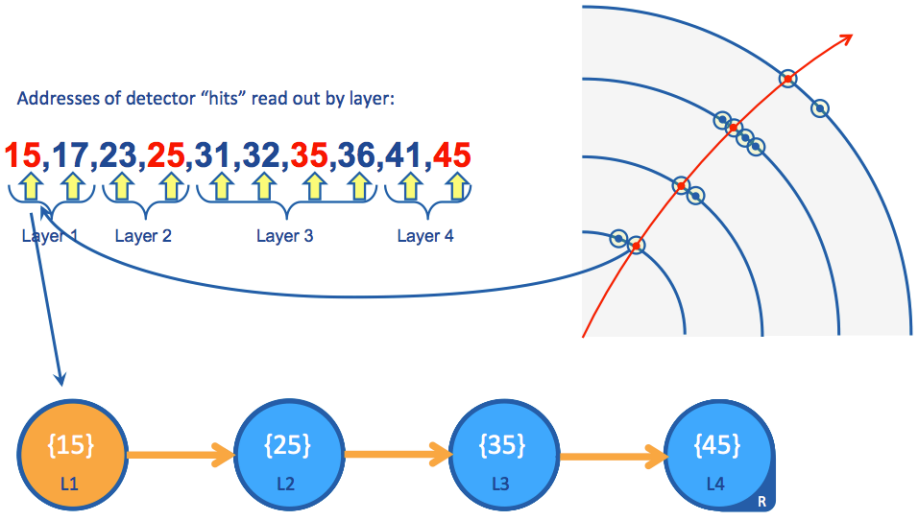
Brill Tagging



Association rule mining



DNA motif search



Particle track detection in HEP

Summary

- The AP is a powerful new accelerator for symbolic pattern matching
- A variety of applications map well to this paradigm
  - Lots of opportunities to transform "big data" applications
- Rich opportunities for research

Thanks for your attention!