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Packet Matching on FPGAs Using HMC Memory: Towards One Million Rules

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Motivation

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  - Check packets against a list of rules (rulesets)

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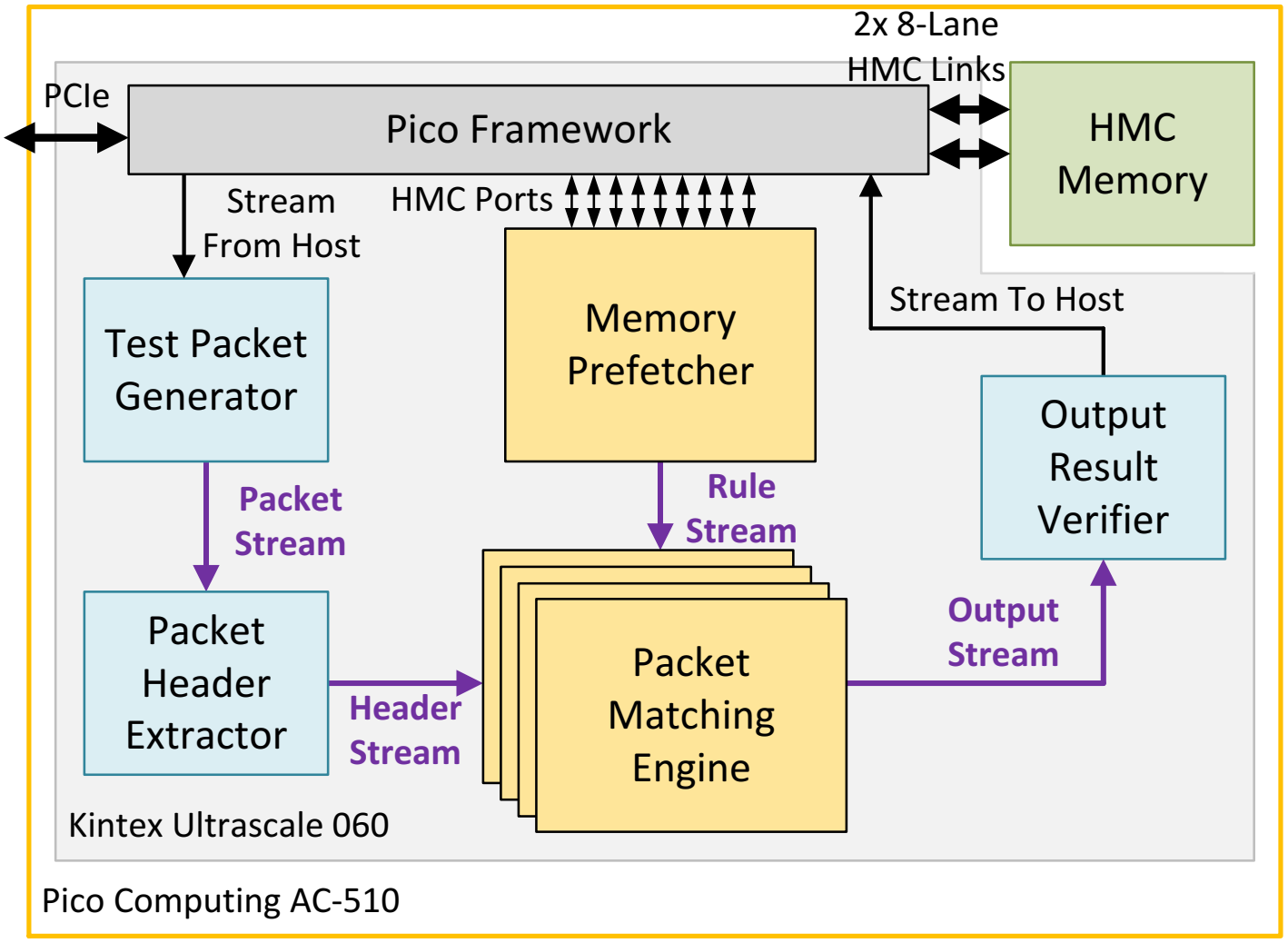
  - Traditional off-chip memory is too slow
- Emerging high performance memories like Hybrid Memory Cube (HMC) could be a solution
  - 10G line rate at 1 million rules

System Architecture



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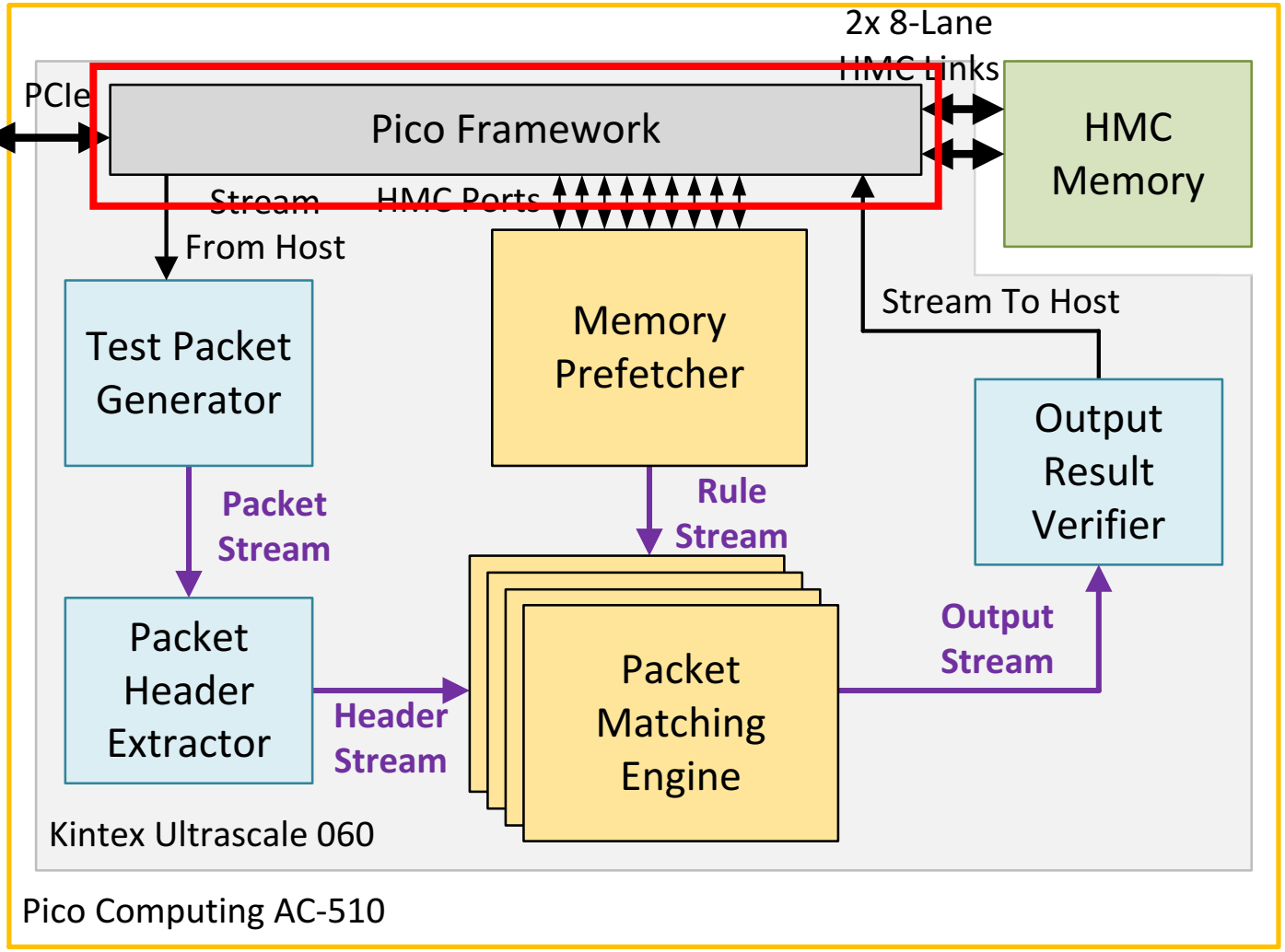

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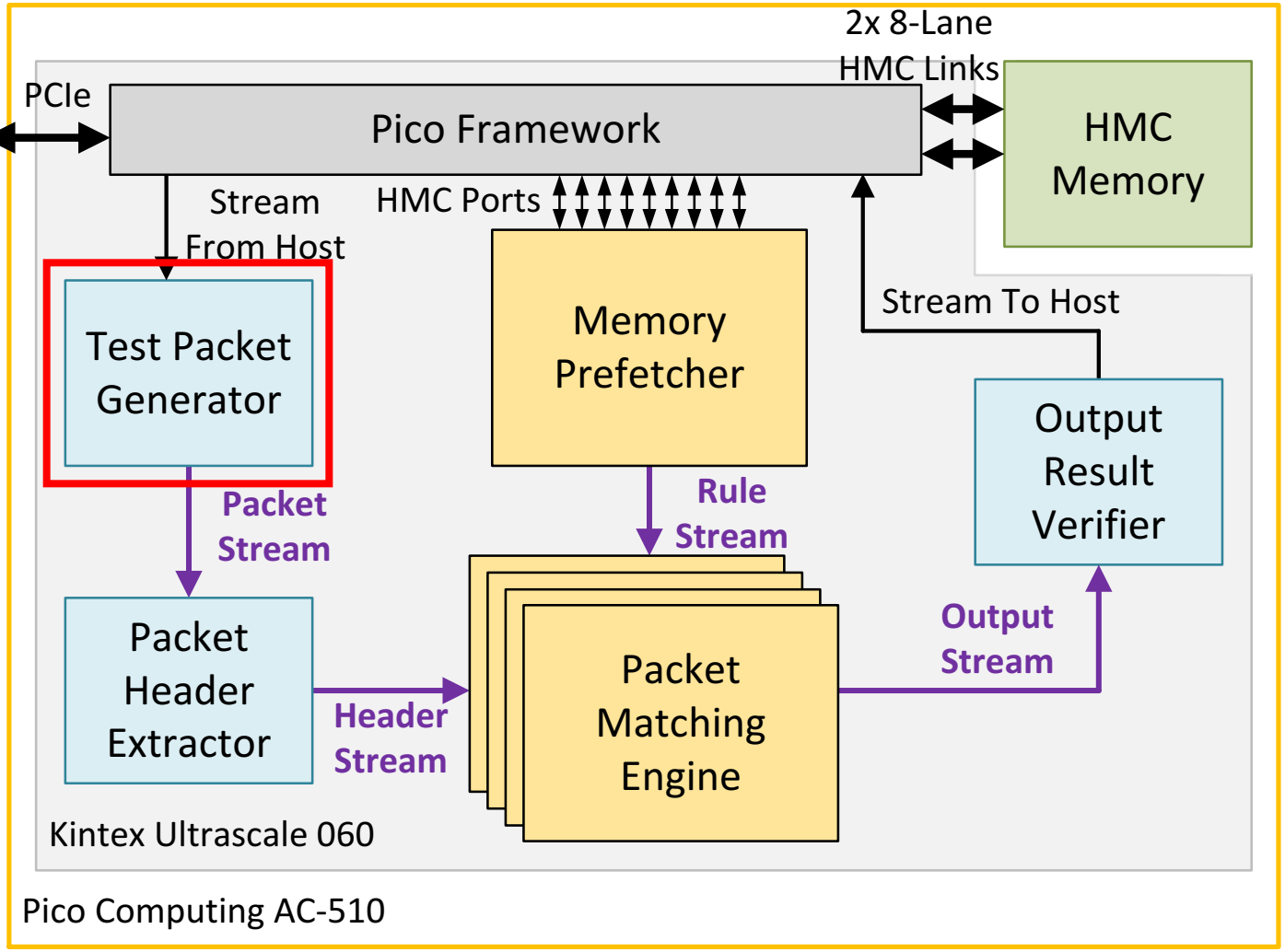

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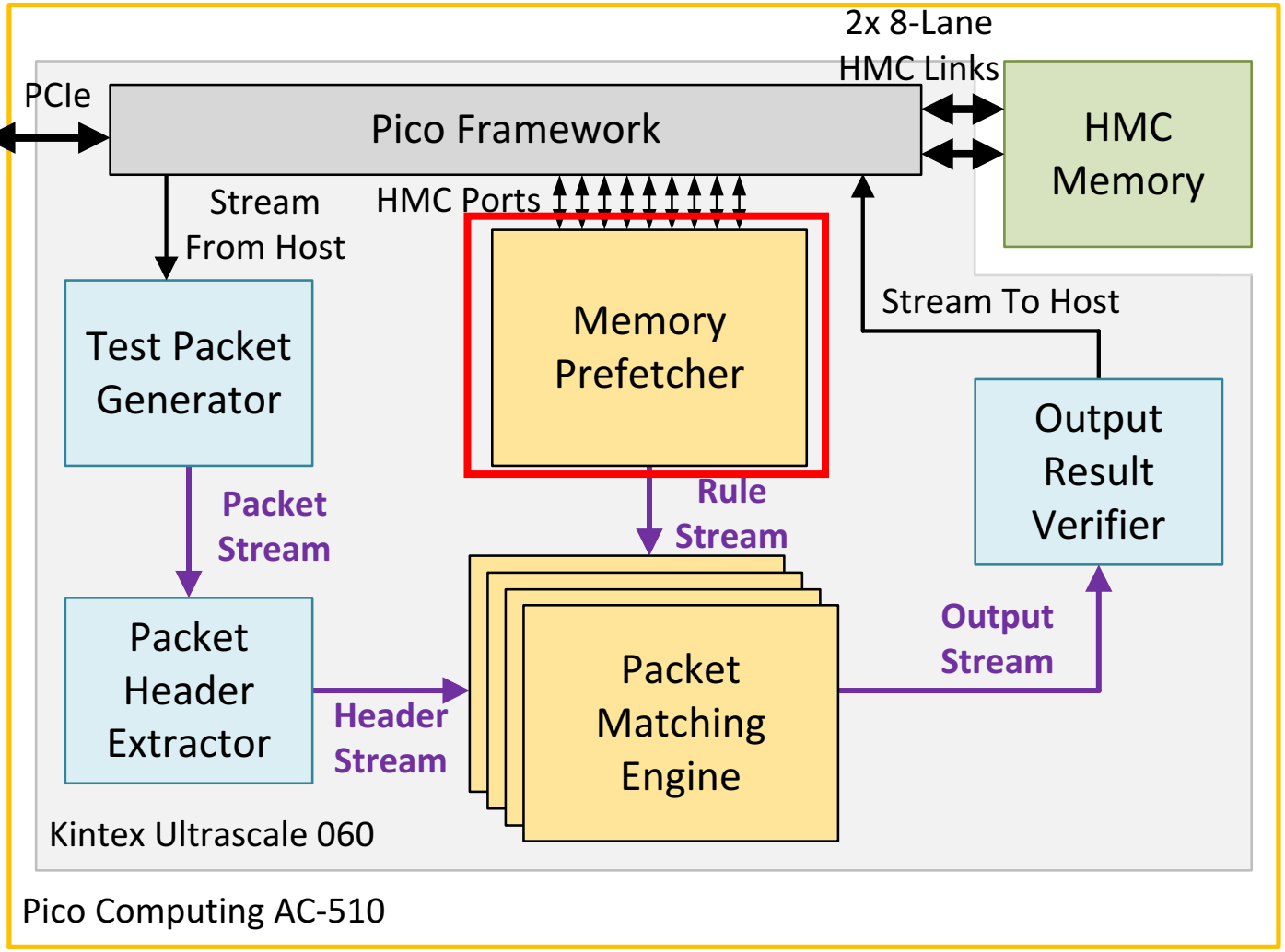

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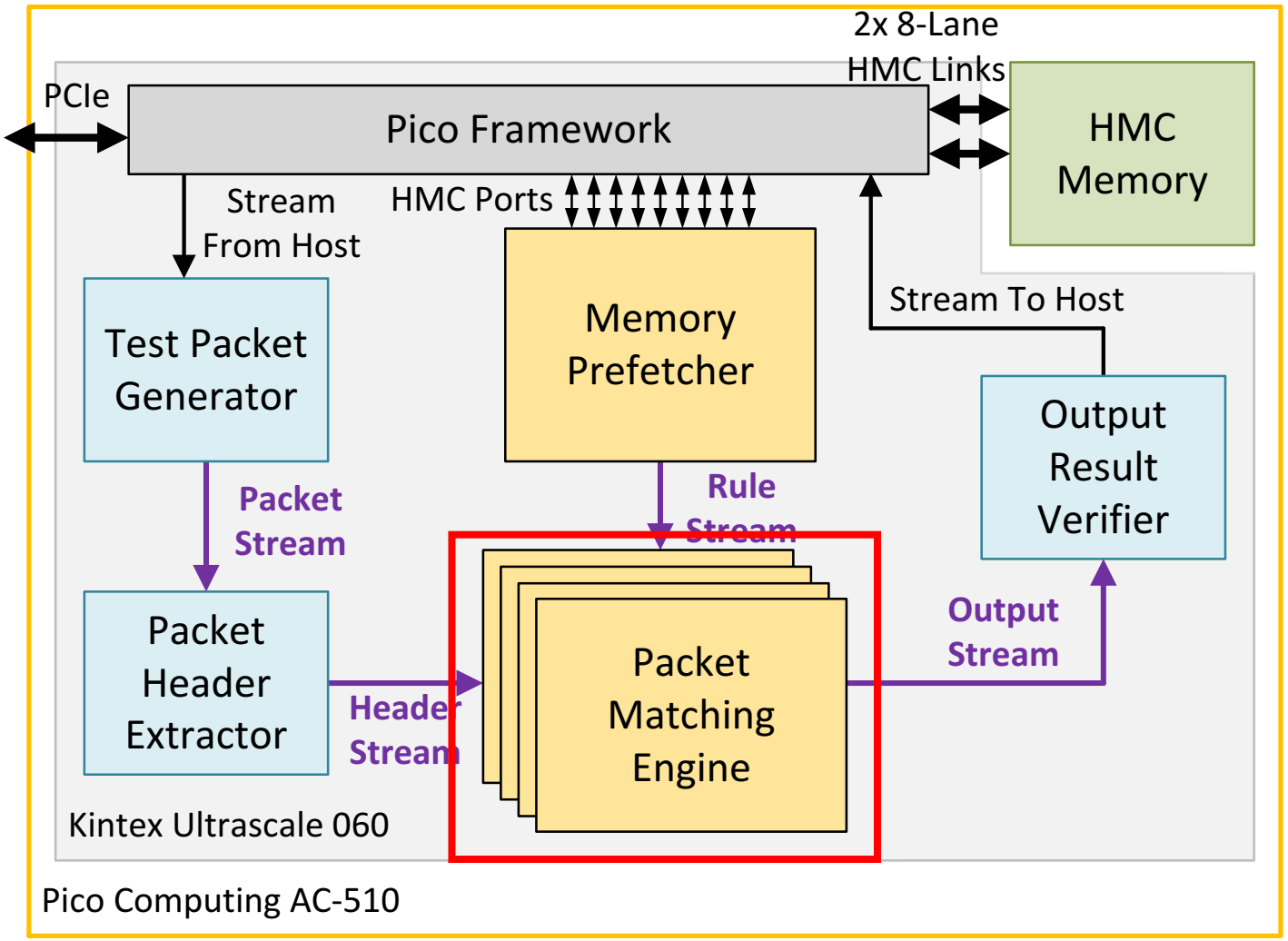
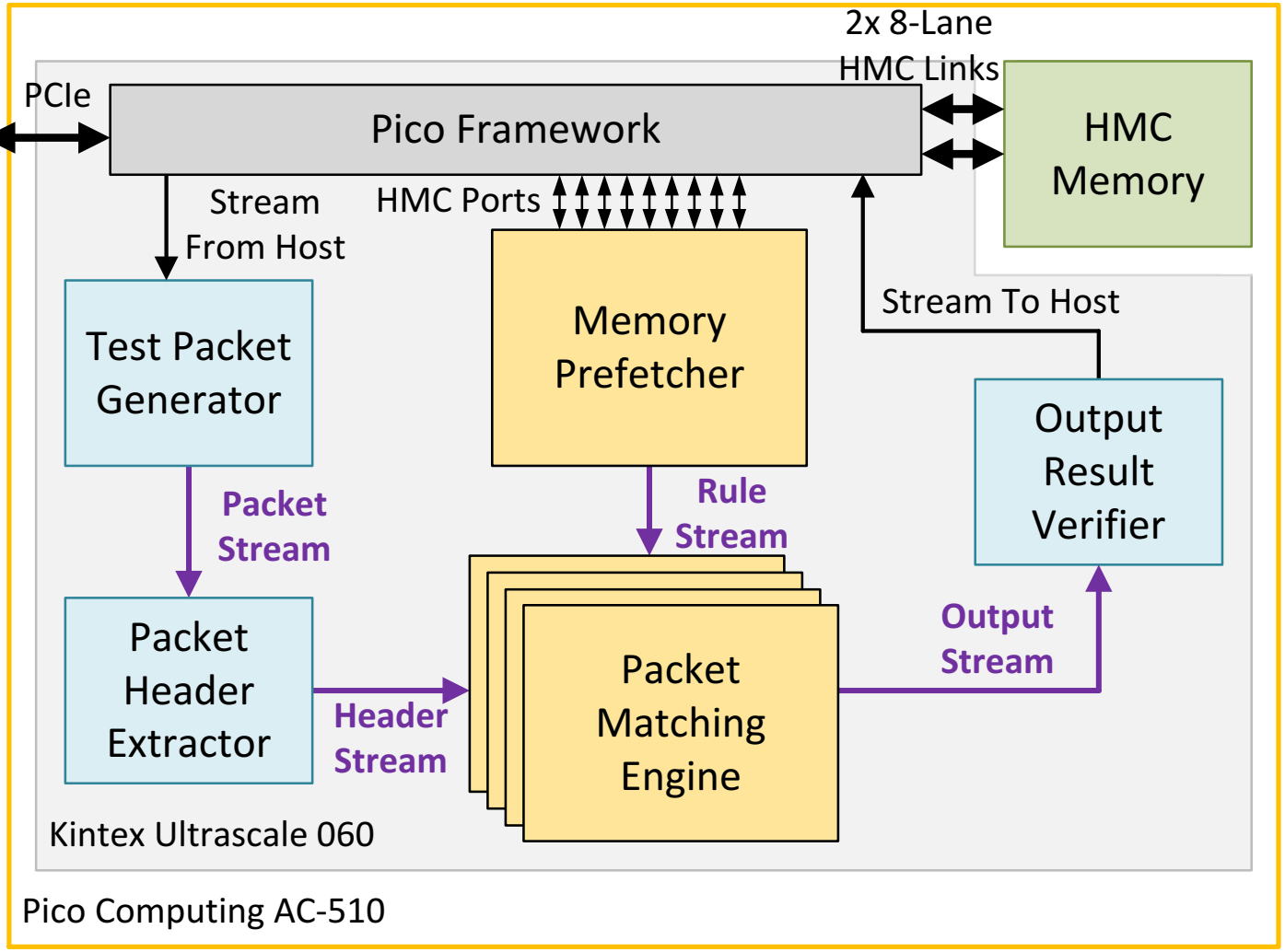


Experience with HLS



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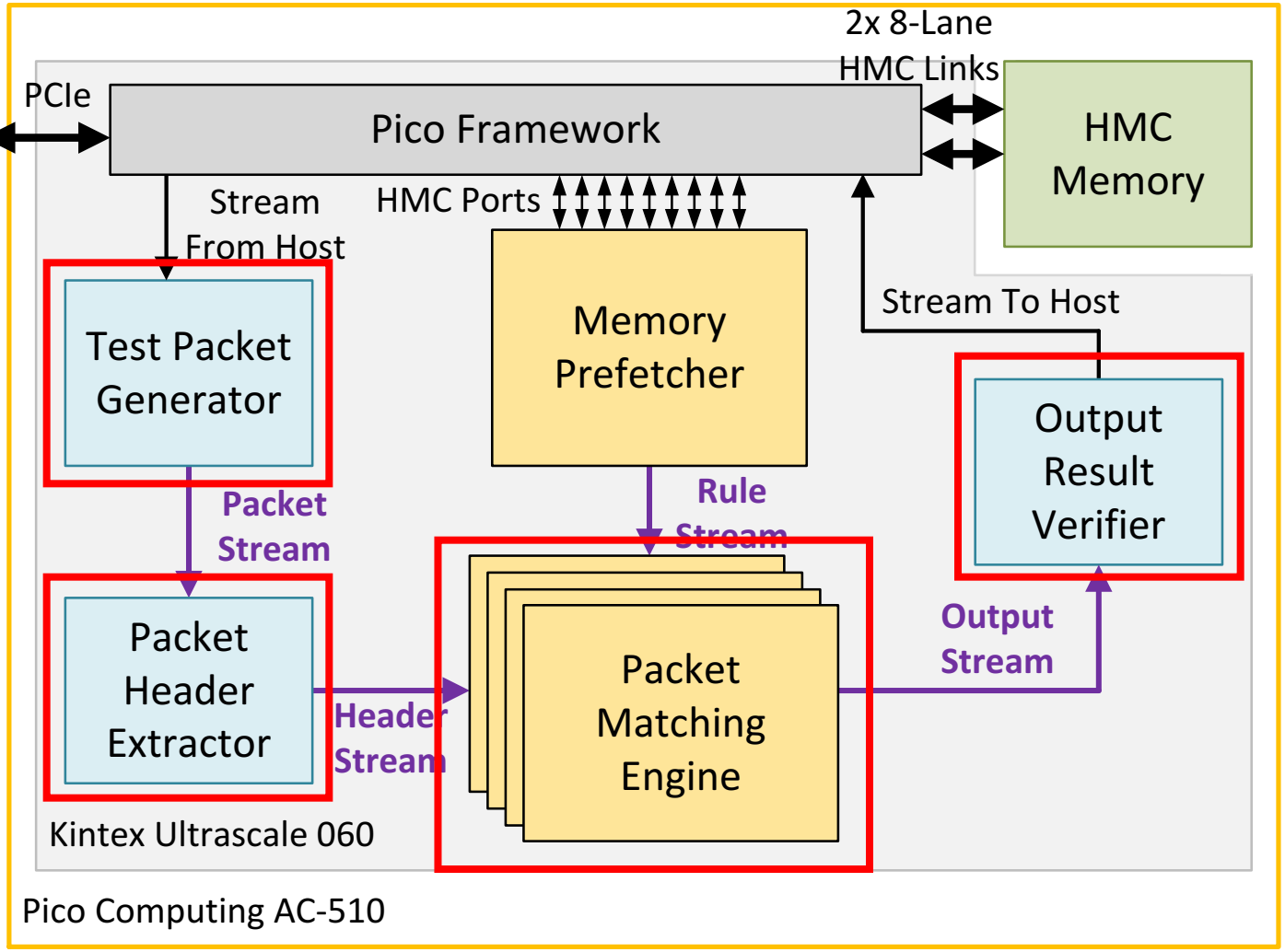
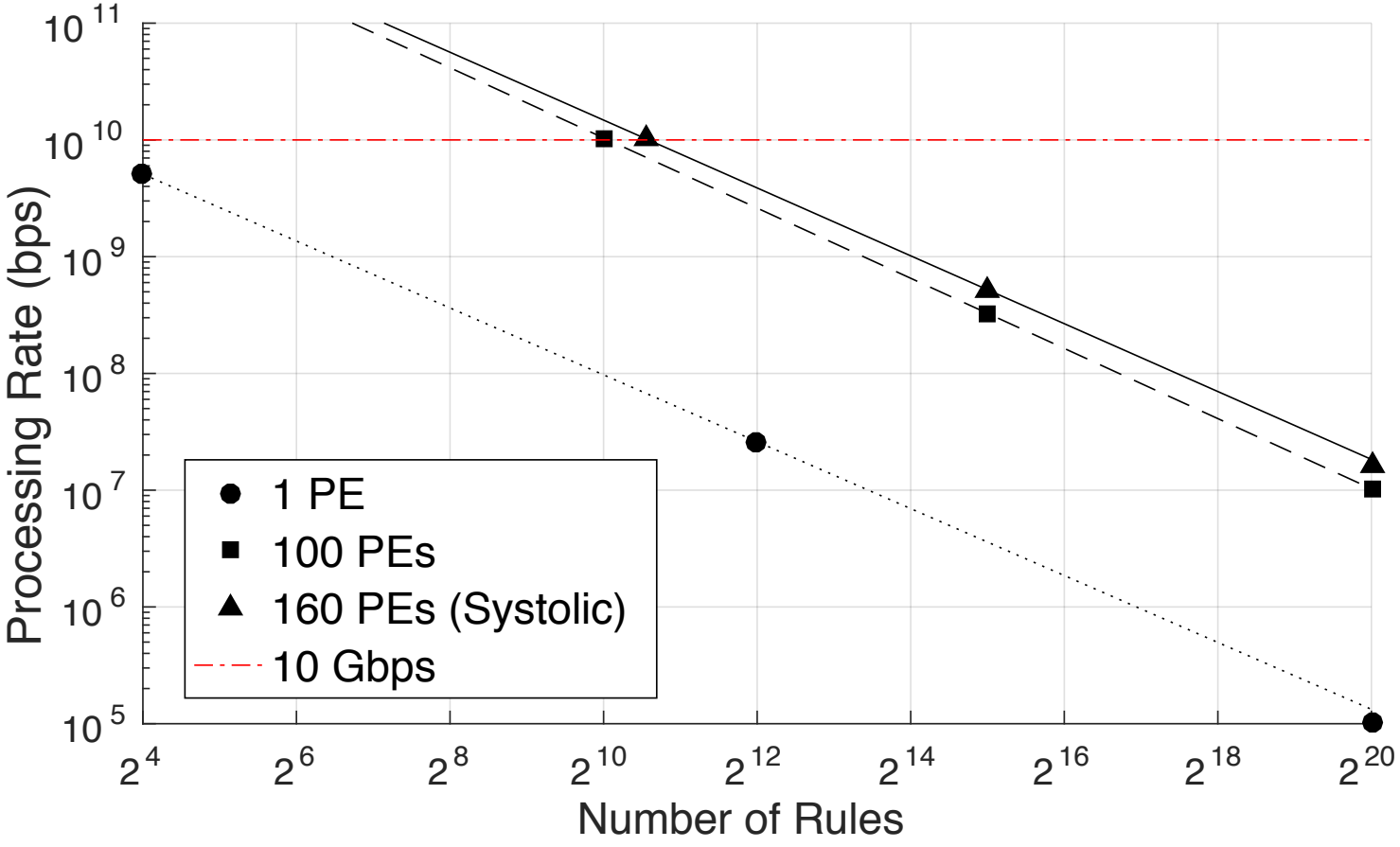


Results - Throughput



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