

REGULAR EXPRESSION CO-PROCESSOR FOR ARM®



Helios RXPA is a silicon IP targeted for ARM® based System on Chip (SoC) solutions. It is designed for high throughput low latency applications that require regular expression (RegEx) pattern matching. Helios RXPA is an ARM® co-processor for next generation cloud and network appliances. It is a unique, fully scalable, hardware accelerated solution for Security Analytics Acceleration (SAA) and content processing. The solution can be tuned for the desired combination of throughput, rule depth and complexity.

KEY FEATURES.....

- ❖ Scalable bandwidth for 5G to 200G
- ❖ Supports up to 1 million rules using external DDR3/4
- ❖ Supports POSIX/PCRE compatible regular expressions
- ❖ Comprehensive Software Development Kit (SDK) including:
 - RXP compiler
 - Application Programming Interface (API)
 - Reference applications
 - Utilities
- ❖ Interfaces: AXI or Native
- ❖ Run-time full and partial ruleset update

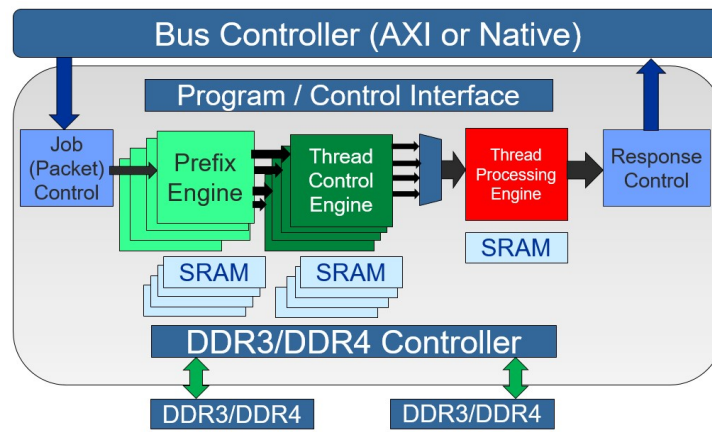
KEY BENEFITS.....

- ❖ RXPA combined with ARM® processor offers significant new product capabilities
- ❖ Highly integrated with ARM® programming model
- ❖ Complex and comprehensive pattern matching at line speed
- ❖ High throughput performance per Watt
- ❖ Solution designed to match your ruleset and throughput rates
- ❖ Supplied as silicon IP block, reducing engineering effort, costs and time to market
- ❖ Highly scalable solution with excellent performance versus area tradeoffs

APPLICATIONS.....

- ❖ Security Analytics Acceleration (SAA)
- ❖ Next Generation Firewall (NGFW)
- ❖ Deep Packet Inspection (DPI)
- ❖ Deep Flow Inspection (DFI)
- ❖ Intrusion Prevention System (IPS)
- ❖ Distributed Denial of Service (DDoS) Mitigation
- ❖ SmartNIC
- ❖ Network Monitoring
- ❖ Data Loss Prevention (DLP)
- ❖ Advanced auditing of user/application security policies
- ❖ Rule based content processing for spam, URLs, adware
- ❖ Financial data mining – parsing of streamed financial feeds

BLOCK DIAGRAM.....



CAPABILITIES & RESOURCES.....

The Helios RXPA can be configured for capabilities per instantiation in bandwidth ranging from 5G to 200G. Resource requirements for Global Foundries 28nm technology at a core clock rate of 800 MHz are below:

	Helios RXPA Resource Requirements		
Bandwidth	25 Gb/s	50 Gb/s	100 Gb/s
Rules Capacity (up to)	1 million	1 million	1 million
Embedded SRAM	8 Mbits	16 Mbits	32 Mbits
Logic gates	0.3 million	0.6 million	1.2 million
Total Silicon Area	5 mm ² (2 clusters)	10 mm ² (4 clusters)	20 mm ² (8 clusters)
Power	~1 W	~2 W	~4 W
External DDR	32-bit DDR3/4 (2GB)	64-bit DDR3/4 (2GB)	2x64-bit DDR3/4 (2GB)

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