

REGULAR EXPRESSION PROCESSOR FOR FPGA



Helios RXPF is a Soft IP targeted at FPGA platforms and is designed for high throughput, low latency applications that require Regular Expression (RegEx) pattern matching. 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 from 5G to 100G
- ❖ Supports up to 1 million rules using external DDR3/4
- ❖ Supports POSIX/PCRE compatible regular expressions
- ❖ Comprehensive SDK including:
 - RXP Compiler
 - Application Programming Interface (API)
 - Reference applications
 - Utilities
- ❖ Interfaces: AXI or Native
- ❖ Run-time full and partial ruleset update

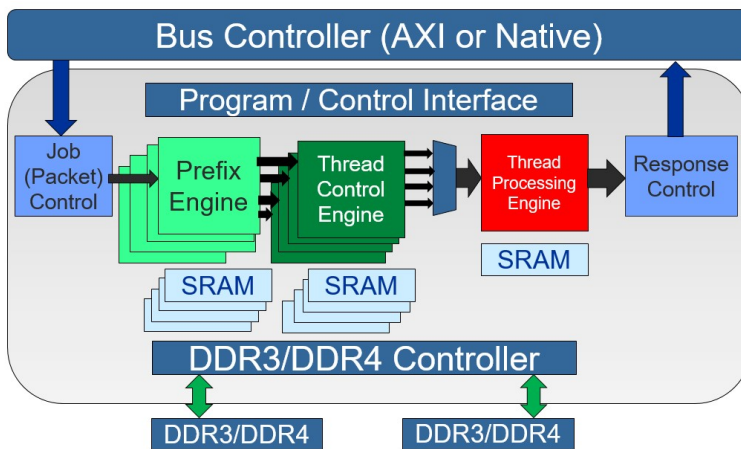
KEY BENEFITS.....

- ❖ Complex and comprehensive pattern matching at line speed
- ❖ Significant CPU offload, while achieving wire speed performance
- ❖ High throughput performance per Watt
- ❖ Solution designed to match your ruleset and throughput rates
- ❖ Supplied as a FPGA IP block, reducing engineering effort, costs and time to market
- ❖ Available in Xilinx Vivado IP Catalog
- ❖ Easy to support and update solution in the field

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 RXPF can be configured for bandwidth ranging from 5G to 100G. Helios is optimized for Xilinx Kintex and Virtex product lines. Resource requirements for Xilinx Ultrascale at a core clock rate of 160 MHz are shown below:

Helios RXPF Resource Requirements			
Bandwidth	10 Gb /s	20 Gb/s	40 Gb/s
Rules Capacity (up to)	1 million	1 million	1 million
# BRAMs	380	650	1,200
# LUTs	52K	97K	190K
# FFs	67K	120K	230K
External DDR (2GB)	32-bit DDR3/4	64-bit DDR3/4	1 to 2 64 bit DDR3/4

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