

Extract insights from unstructured text

INTRODUCTION

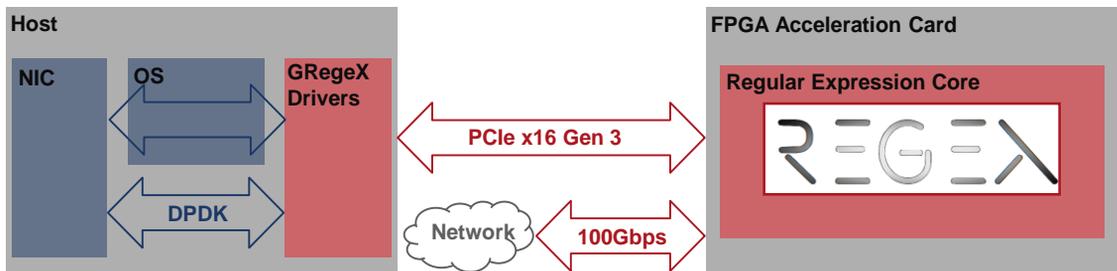
Fast analysis of unstructured textual data, such as system logs, network traffic, social media posts, emails, or news articles, is growing ever more important in technical and business data analytics applications. Nearly 85% of business data is in the form of unstructured textual logs. Rapidly extracting information from these text sources is critical for business decision making. GRegeX is an implementation of standard regular expression algorithm on FPGA chip achieving 12.8 GB/s throughput with a single IP core. Wide range of supported regular expression functions allows developers configure desired rules which can be handled in a chip without reducing the throughput.

KEY BENEFITS

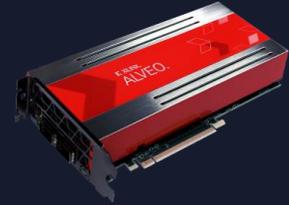
- Host drivers and reference examples for using in C, Java
- Easy to get started due to the compatibility with PCRE rules
- Supports Cloud as well as on-prem cards

SOLUTION OVERVIEW

The solution consists of two parts: Regular Expression IP core on the FPGA side and the drivers in Host side: The data sources of the solution can be the NIC of the server using Linux Kernel or DPDK library, the network interface available directly on the acceleration card or any application running on the Linux environment for feeding the GRegeX Drivers with the data.



SOLUTION BRIEF



- 12.8 GB/s Throughput with a Single Core
- PCRE Compatible
- Customizable

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SOLUTION DETAILS

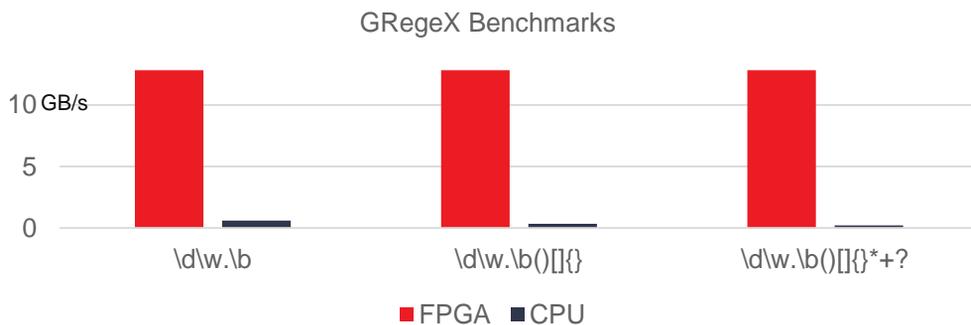
Specification of GRegeX:

Parameters	Details
Throughput	12.8 GB/s
LUT	37.4 %
FF	18.5 %
BRAM	15.4 %
Supported Functions:	. \d \D \w \W \s \S \b \B ^ \$ [] [^ () * + ? {3} {3,4}

Note: Results shown above are for Xilinx® Alveo™ U200 card

RESULTS

GRegeX achieves 12.8 GB/s throughput regardless of the regular expression rule set while software implementation speed decreases when using more complex regex rules such as brackets and repeat symbols.



TAKE THE NEXT STEP

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