INTRODUCTION

Data engineers, data scientists, and data analysts are constantly searching for correlations in data to solve real-world business problems.

Tabular and unstructured databases do not focus on relationships -- making it difficult to understand behaviors and unlock predictions; and waste countless hours for data scientists searching for answers in siloed data.

Graph analytics makes data relationships the focus, quickly delivering insights that were previously expensive and difficult to obtain.

_The next frontier is obtaining those answers in real-time._

ACCELERATING GRAPH ANALYTICS

The Alveo U55C is able to accelerate query times and predictions for recommendation engines from minutes down to milliseconds. The U55Cs superior computational power and memory bandwidth enable graph query speeds up to 96x faster compared to CPU-based clusters, while increasing the quality of scores by up to 35%. This improvement results in greater confidence, dramatically lowering false positives to low single digits.
REAL-TIME RESULTS DEMAND XILINX ACCELERATION

**TigerGraph**, the world’s most scalable graph database, turned to Xilinx to deliver enhanced performance for their most time-sensitive applications. TigerGraph tapped into the Alveo U55C’s massive parallel processing ability to deliver the computational power necessary to dramatically accelerate the two most prolific algorithms that drive graph-based recommendation engines: **Cosine Similarity** and **Louvain Modularity**.

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**PRODUCT RECOMMENDATION**

Real-time Personalized Patient Care. 96x Faster on Xilinx.

Using the **Xilinx Cosine Similarity Vitis Library** the Alveo U55C card performed 96x faster than a CPU running the TigerGraph Cosine Similarity recommendation engine across millions of patient records to deliver results in milliseconds.

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**FRAUD DETECTION**

Real-time Fraud Detection. 45x Faster on Xilinx.

Using the **Xilinx Louvain Modularity Vitis Library**, the TigerGraph fraud detection system leveraged the Louvain community detection algorithm to detect fraudsters and money launderers across hundreds of bank accounts in real-time.

In this benchmark, the Alveo U55C card provides 45x acceleration performance over a CPU.

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**TAKE THE NEXT STEP**

Learn more about the Alveo U55C data center accelerator card > [www.xilinx.com/AlveoU55C](http://www.xilinx.com/AlveoU55C)