

Accelerate Spark

Bigstream hyper-acceleration layer



- Zero code change
- Heterogeneous hardware support
- 2X to 30X acceleration

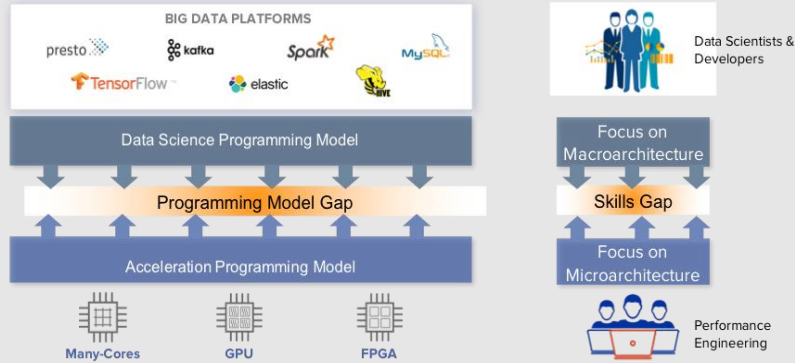
INTRODUCTION

Current Challenges with Big Data Initiatives

The field of analytics is experiencing a constant growth in both the amount of data being processed, as well as sophistication of analyses needed to reap business value.

The infrastructure investment growth is driven by three factors:

- Business objective to analyze every aspect of their business
- Adoption of more data sources with larger data sets
- Faster and more frequent iteration of analytics and/or machine learning algorithms for near real-time insight



Today, there is no automated way for BIG Data platforms to leverage advanced Field Programmable hardware.

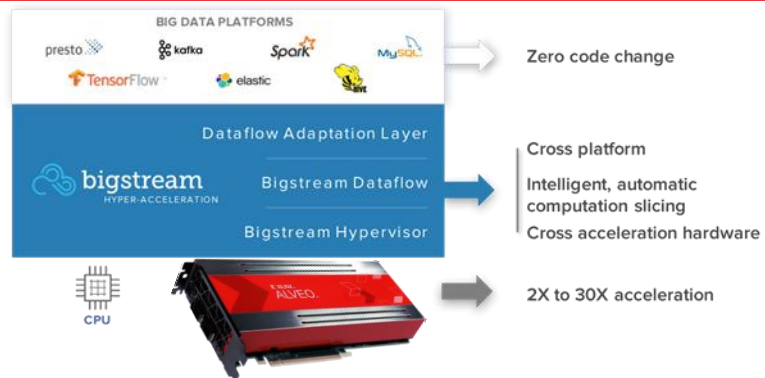
PRODUCT OVERVIEW

The Bigstream Hyper-Acceleration Layer and the Alveo™ U200 data center accelerator card:

- Does not require any code changes.
- Automated programming of applications onto the Alveo™ U200 data center accelerator card. The result is lower risk and faster time to production.
- Accelerates every step of a Big Data Pipeline, achieving the highest levels of end-to-end speedup.
- Leverages both CPU and FPGA hardware simultaneously to provide optimal performance.

SOLUTION OVERVIEW

Bigstream Hyper-acceleration layer automates the process of acceleration for the users of big data platforms. It is comprised of compiler technology for software acceleration via native C++, and FPGA acceleration templates. The automatic compilation of user code for acceleration yields between a 2x-30x factor in performance.



Solution Benefits

The Bigstream Hyper-Acceleration Layer provides:

- **Time-to-Insight:** For many use cases, customers are limited in their ability to iterate their analytics more frequently to manage risk, optimize revenue, or improve customer engagement. Bigstream's acceleration technology enables customers to run their models up to an order of magnitude faster to achieve their business objectives. This is especially important in delay sensitive applications that require a much smaller time scale.
- **TCO Savings:** Doing more with less. Companies want to expand their analytics applications, run them more frequently and leverage larger data sets. But each of these translate to major increase in infrastructure cost. This cost involves charges by cloud providers, or in the case of on-premises deployment, involves cost of hardware, power, cooling and additional personnel. Bigstream acceleration can result in savings of 30-70%.
- **Faster pace of innovation:** The scarcity and cost of employing Data Scientists limits the pace of innovation in enterprises. Acceleration of workloads during development and operation frees up Data Scientists to take on more innovative initiatives, driving competitive advantage.

Use Cases

The Hyper-Acceleration Layer focuses on acceleration of Spark platform in the following use cases:

- ETL
- Streaming analytics: Spark Streaming, Kafka
- SQL Analytics: Hive or Spark SQL

Big Data and Machine Learning are being adopted by enterprises as a means of creating competitive advantage. Companies who want to get ahead of the pack in their industry are investing heavily in infrastructure aimed at turning raw data into business value. To meet this challenge, the data analytics industry has turned to hardware accelerators. However, a significant gap exists between a data scientist's toolkit and leveraging FPGA acceleration. Bigstream software closes this gap and accelerates Big Data Ingestion/BI applications **transparently** leveraging the combination of CPUs and FPGA cards in servers. The result is end-to-end execution speedup of up to an order of magnitude depending on the workload and server configuration. Bigstream's focus is on acceleration of Spark, the most popular Big Data platform.

Engage with Bigstream

The Bigstream Hyper-Acceleration Layer solves real-world big data problems. Engaged organizations can expect state of the art acceleration technology and the expertise to realize significant, measurable ROI, and staggering performance gains. Bigstream provides a tool called xRay to help customers characterize the nature of their Analytic workload and identify potential bottlenecks. xRay identifies the acceleration potential of the combined Bigstream- the Alveo™ U200 data center accelerator solution without installing any hardware. Reach out to Bigstream at <http://insight.bigstream.co/>, to profile your installation today.



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