

# Swarm64 PostgreSQL Accelerator

The easiest path to faster performance & scalability



## INTRODUCTION

For decades, data-driven companies have paid a premium for specialized data warehousing hardware from vendors like Teradata, Oracle, and Netezza.

Today, field-programmable gate arrays (FPGA), which famously powered the Netezza data warehouse appliance, have become readily available and affordable to everyone.

Swarm64 accelerates database performance on FPGA-equipped servers and achieve game-changing breakthroughs in analytics.

## PRODUCT OVERVIEW

Accelerating databases with Swarm64 and Xilinx Alveo is an excellent, low-cost way to tackle analytic projects with many concurrent users, high data ingestion rates, or real-time query requirements:

- Data warehouse modernization
- Geospatial and time series analysis
- IoT data capture
- ETL staging and transformations
- User-facing, interactive analytic dashboards

## SOLUTION OVERVIEW

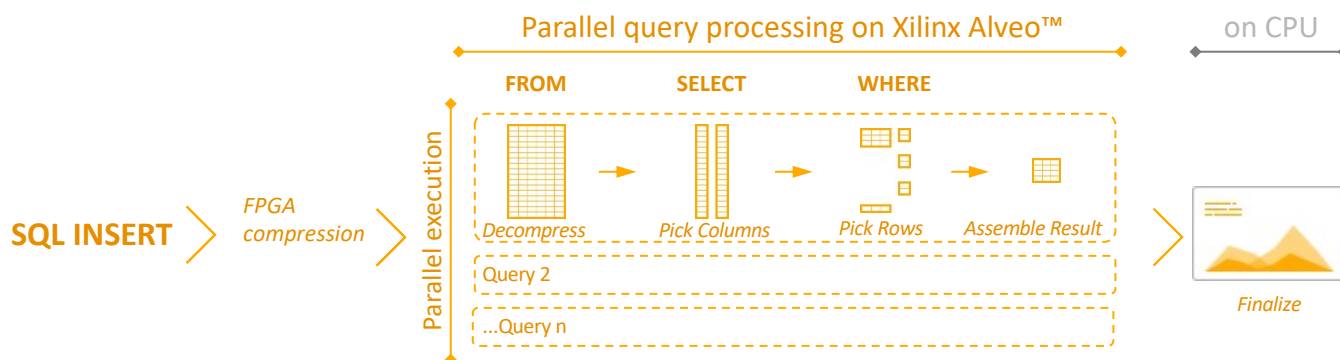
When Swarm64 is installed, it programs the FPGA with thousands of processes that work in parallel to write, read, filter, compress, and decompress data within your database tables.

Not only does this add powerful new processing to your DBMS server, it also lowers the CPUs' workloads, which increases their throughput as well. In TPC-H benchmarks, Swarm64 acceleration on a Xilinx Alveo U250 speeds up query performance by 50x, data loading by 35x, and reduces storage space by 5x.

### SOLUTION BRIEF



- 50x faster PostgreSQL performance
- No changes to your SQL or application code
- Great for analytics, data warehousing, IoT, geospatial, & time series



Adaptable. Intelligent.

## PRODUCT FEATURES



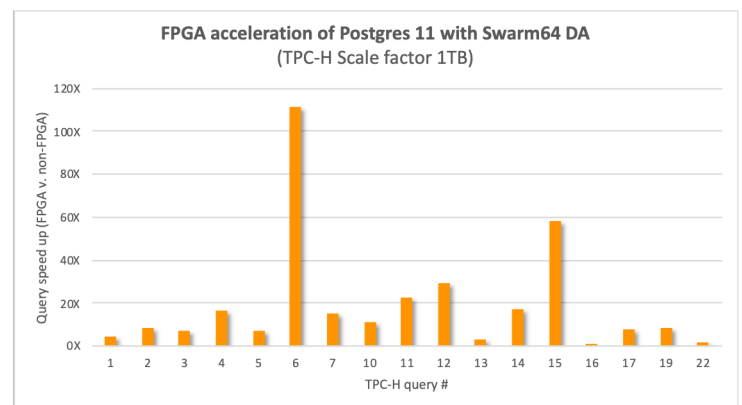
- Accelerates the open source PostgreSQL database for lower analytics costs
- No changes to your SQL or application code
- High-velocity data ingestion from multiple data sources & data types
- Zero-overhead compression (on live data and back-ups)
- Separation of compute and storage; use any storage layer
- Optimized columnar data storage for efficient range queries, auto-partitioning, time series, and log data processing

## PERFORMANCE \*

In benchmark tests, accelerating a PostgreSQL database server with an FPGA board and the Swarm64 software improved the performance of PostgreSQL (11) as follows:

- 50x faster queries
- 35x more records inserted per second
- 5x storage space reduction
- 4x better price-performance
- When clustering, deploy on 4x fewer nodes (i.e., 3 nodes instead of 12)

Swarm64 requires no changes to your SQL queries or application code. It's a very straightforward way to boost performance.



Benchmark running Swarm64 DA on Xilinx Alveo U250 to accelerate Postgres 11 vs. Postgres without the FPGA acceleration. Median acceleration is 8.3x.

## TAKE THE NEXT STEP

Learn more about [Alveo accelerators](#)

Learn more about Swarm64: [www.swarm64.com](http://www.swarm64.com)

Reach out to the team at [info@swarm64.com](mailto:info@swarm64.com) to learn more.