



# TESLA™ CASE STUDY

## J.P. Morgan

### GPUs Increase Speed of Risk Computations While Reducing Cost

#### **Background**

Risk management computations represent a tremendous cost in the financial services industry. As the largest investment banking entity worldwide, J.P. Morgan needed to find a better way to calculate risk in a reasonable timeframe without adding more infrastructure costs to its bottom line.

#### **Challenge**

As part of a three year plan to reduce the cost of risk calculation by 75 percent, J.P. Morgan needed to make technology changes in its data centers to comply with the cost-saving mandate. An additional component of the initiative was to enable greener data centers that provide higher computing performance with reduced power consumption.

#### **Solution**

J.P. Morgan's Equity Derivatives Group began evaluating NVIDIA® Tesla™ GPUs in 2009 as a computation alternative for their complex requirements. The company selected Tesla M2070 GPUs to integrate into its global grid computing infrastructure in 2010, and realized immediately that this was the right choice.

GPUs are enabling the calculation of risk across J.P. Morgan investment products in a matter of mere minutes, instead of what was previously an overnight processing task. Tesla GPUs give J.P. Morgan a significant market advantage to arrive at better decisions through more frequent runs and complex scenario calculations. GPUs are a game-changing technology for J.P. Morgan's business.

#### **Impact**

Using GPUs as companion processors has accelerated application performance by 40X in comparison to CPU-only cores, and has delivered an overall 80 percent savings. NVIDIA Tesla GPUs are now deployed in multiple data centers across the bank's global offices and are being seamlessly shared between global applications. This integration of GPUs into the shared global computational infrastructure has resulted in GPU utilization rates approaching 70 percent, 24 hours a day

J.P. Morgan was recently recognized by *The Banker Magazine* for innovation in banking technology based upon its deployment of GPUs for risk computation in equity derivatives.

Moving forward, the company has plans to further increase the amount and type of computations that GPUs perform, as well as examine the viability of new models that were previously considered unaffordable from the perspective of compute capacity.