



## NVIDIA® TESLA® K80 THE WORLD'S FASTEST GPU ACCELERATOR

### Experience 10x faster application performance.

Accelerate your most demanding single and double precision workloads in scientific computing, seismic processing, and data analytics applications by upgrading to the NVIDIA Tesla K80 dual-GPU accelerator. It delivers up to 2.2x faster performance than the Tesla K20X, up to 2.5x faster performance than the Tesla K10, and up to 10x faster performance than CPUs on real-world applications.

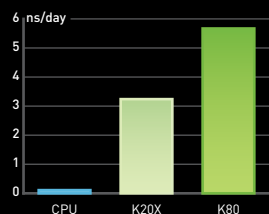
The Tesla K80 features:

- > Up to 2.91 Teraflops of double precision performance with NVIDIA GPU Boost™
- > Up to 8.74 Terflops of single precision performance with NVIDIA GPU Boost
- > 24 GB of GDDR5 memory (12 GB per GPU)
- > 480 GB/sec memory bandwidth per board
- > 2x application throughput with the two onboard GPUs

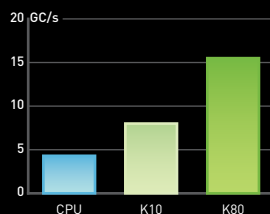
As the latest addition to the Tesla Accelerated Computing Platform, the Tesla K80 leverages a rich software, hardware, and support eco-system to accelerate the most demanding workloads in the datacenter.

### FASTER

Up to 2.2x Faster than Tesla K20X, Up to 2.5x Faster than Tesla K10  
Up to 10x Faster than CPU<sup>1</sup>



Life Science: AMBER<sup>2</sup> Benchmark



Oil & Gas: RTM<sup>3</sup> Benchmark

### SMARTER BIGGER

24 GB Memory for High  
Performance Data Analytics  
Intelligently Maximize  
Performance and Efficiency



**GPU Boost**

### Upgrade your GPU

The Tesla K80 accelerator delivers more than 2x application speed-up compared to the previous generation of accelerators, and up to 10x faster performance compared to CPUs. With exclusive features like 24 GB of GDDR5 memory, 480 GB/s memory bandwidth, and improved GPU Boost technology, the Tesla K80 delivers the computational horsepower that allows you to crunch through petabytes of data and run simulations faster than ever before.

### K80 Features

**New: GPU Boost** — Dynamically scales clocks, based on characteristics of the workload, for maximum application performance. This ensures that each application runs at the highest clocks while remaining within the power and thermal envelope.

**New: Double shared memory and register file** — Increase effective bandwidth with 2x shared memory and 2x register file compared to the Tesla K20X and K10.

**New: Zero-power Idle** — Increase data center energy efficiency by powering down idle GPUs when running legacy non-accelerated workloads.

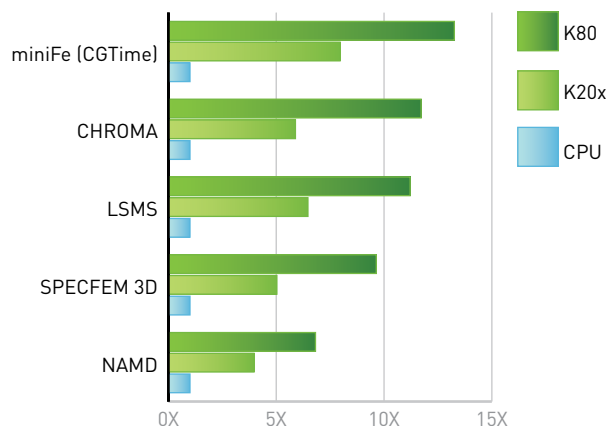
**Multi-GPU Hyper-Q** — Efficiently and easily schedule MPI ranks across GPUs, increasing GPU utilization and ease of programming.

**System Monitoring** — Manage GPU processors in computing systems with widely used cluster/Grid solutions.

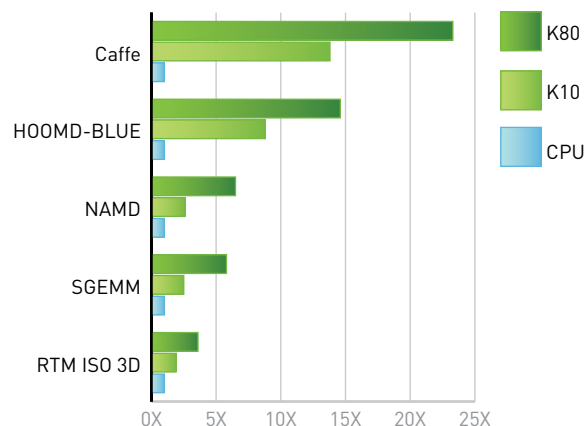
**Memory Protection** — Error Correcting Codes (ECC) memory protection for both internal memories and external GDDR5 DRAM meets a critical requirement for computing accuracy and reliability in supercomputing and data centers.

1. E5-2697v2 @ 2.70 GHz | 2. Amber SPFP-Nucleosome. CPU: E5-2697v2 @ 2.70 GHz. GPU: Single K20X or K80 with GPU Boost enabled | 3. RTM ISO 3D 16th order. CPU: Dual socket E5-2697v2 @ 2.70 GHz. GPU: Single K10 or K80 with GPU Boost enabled

## APPLICATION PERFORMANCE



CPU: single E5-2697v2 @ 2.70 GHz  
GPU: Single K10, K20X or K80, GPU Boost enabled



RTM CPU: dual socket E5-2697v2 @ 2.70 GHz  
RTM GPU: Single K10 or K80, GPU Boost enabled

## 280+ GPU Accelerated Applications

<b>MOLECULAR DYNAMICS</b> <ul style="list-style-type: none"> <li>&gt; AMBER</li> <li>&gt; CHARMM</li> <li>&gt; GROMACS</li> <li>&gt; NAMD</li> </ul>	<b>QUANTUM CHEMISTRY</b> <ul style="list-style-type: none"> <li>&gt; GAMESS</li> <li>&gt; LAMMPS</li> <li>&gt; QMC PACK</li> <li>&gt; TeraChem</li> </ul>	<b>DATA ANALYTICS</b> <ul style="list-style-type: none"> <li>&gt; Caffe</li> <li>&gt; Theano</li> <li>&gt; MapD</li> </ul>	<b>MATH/PHYSICS</b> <ul style="list-style-type: none"> <li>&gt; Chroma</li> <li>&gt; MATLAB</li> <li>&gt; MILC</li> </ul>	<b>FLUID DYNAMICS</b> <ul style="list-style-type: none"> <li>&gt; ANSYS Fluent</li> <li>&gt; OpenFOAM</li> </ul>	<b>MEDIA &amp; ENTERTAINMENT</b> <ul style="list-style-type: none"> <li>&gt; Autodesk 3ds Max</li> <li>&gt; Adobe Photoshop</li> <li>&gt; Adobe Premier</li> <li>&gt; Sony Vegas Pro</li> </ul>
<b>DEFENSE</b> <ul style="list-style-type: none"> <li>&gt; Intuition Panoptes 3.0</li> <li>&gt; Intergraph Motion Video Analyst</li> </ul>	<b>VISUALIZATION &amp; DOCKING</b> <ul style="list-style-type: none"> <li>&gt; BINDSURF</li> <li>&gt; VMD</li> <li>&gt; FastROCS</li> </ul>	<b>COMPUTATIONAL FINANCE</b> <ul style="list-style-type: none"> <li>&gt; Aon Benfield Pathwise</li> <li>&gt; Murex MACS</li> <li>&gt; NAG (Numerical Algorithms Group)</li> </ul>	<b>ELECTRONIC DESIGN AUTOMATION</b> <ul style="list-style-type: none"> <li>&gt; Agilent EMPro</li> <li>&gt; CST Microwave Studio</li> <li>&gt; Remcom XFDTD</li> </ul>	<b>STRUCTURAL MECHANICS</b> <ul style="list-style-type: none"> <li>&gt; ANSYS Mechanical</li> <li>&gt; Abaqus/Standard</li> </ul>	

To see the complete list of GPU-accelerated applications, visit [www.nvidia.com/testaapps](http://www.nvidia.com/testaapps)

## Test Drive Tesla K80

Experience the acceleration for yourself by trying the Tesla K80 for free. You can run your own code or try one of the preloaded applications like AMBER, NAMD, GROMACS, and LAMMPS. It's simple and free to try. Sign up at [www.microway.com/gputestdrive](http://www.microway.com/gputestdrive)

## Buy a K80 today

Purchase your Tesla K80 GPU accelerator today from Microway [www.microway.com/tesla](http://www.microway.com/tesla)



Microway NumberSmasher®  
1U/2U/4U Tesla GPU Servers

### NumberSmasher 1U/2U/4U GPU Servers for Tesla K40/K80

Fully integrated servers leveraging NVIDIA Tesla GPUs with thorough integration and superior cooling.

- Up to 8 NVIDIA Tesla K80 GPUs
- 2 Intel® Xeon® E5-2600v3 CPUs
- Mellanox® FDR InfiniBand



Incorporated in 1982, Microway is a major vendor in the High Performance Computing market, designing state-of-the-art, high-end Linux clusters, servers, and workstations for NVIDIA GPUs. Classified as a small business, woman owned and operated, Microway's GSA Schedule Number is GS-35F-0431N

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