Xilinx® Alveo™ Data Center accelerator cards are designed to meet the constantly changing needs of the modern Data Center, providing up to 90X performance increase over CPUs for common workloads, including machine learning inference, video transcoding, and database search and analytics.

With complex algorithms evolving faster than silicon design cycles, it’s impossible for fixed function GPU and ASIC devices to keep pace. Built on Xilinx 16nm UltraScale™ architecture, Alveo U200 and U250 accelerator cards provide reconfigurable acceleration that can adapt to continual algorithm optimizations, supporting any workload type while reducing overall cost of ownership.

Enabling Alveo accelerator cards is a growing ecosystem of Xilinx and partner applications for common Data Center workloads. For custom solutions, Xilinx’s Application Developer tool (SDAccel™ tool) and Machine Learning Suite provide the tools for developers to bring differentiated applications to market.

**HIGHLIGHTS**

**Fast – Highest Performance**

- Up to 90X higher performance than CPUs1 on key workloads at 1/3 the cost2
- Over 4X higher inference throughput3 and 3X latency advantage over GPU-based solutions4

**Adaptable – Accelerate Any Workload**

- Machine learning inference to video processing to any workload using the same accelerator card
- As workloads algorithms evolve, use reconfigurable hardware to adapt faster than fixed-function accelerator card product cycles

**Accessible – Cloud ↔ On-Premises Mobility**

- Deploy solutions in the cloud or on-premises interchangeably, scalable to application requirements
- Applications available for common workloads, or build your own with the application developer tool

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1. BlackLynx Elasticsearch on Alveo versus EC2 c4.8xlarge
2. Based on CapEx & OpEx savings for DNN inference on Alveo vs dual-socket Intel Xeon Platinum servers
3. Accelerating DNNs with Alveo Accelerator Cards White Paper
4. Measured on CNN+BLSTM Speech-to-Text ML inference against Nvidia P4
BENCHMARKS

Visit [www.xilinx.com/alveo](http://www.xilinx.com/alveo) for more information. To get started now, visit Nimbix cloud services to test drive data center workloads or purchase Alveo U200 or U250 Data Center accelerator cards for on-premises deployment.

### Area

#### PARTNER WORKLOAD

- **Database Search and Analytics**: BlackLynx Unstructured Data Elasticsearch
- **Financial Computing**: Maxeler Value-at-Risk (VAR) Calculation
- **Machine Learning**: Xilinx Real-Time Machine Learning Inference
- **Video Processing / Transcoding**: NGCodec HEVC Video Encoding
- **Genomics**: Falcon Computing Genome Sequencing

#### ALVEO ACCELERATION VS CPU

- **Database Search and Analytics**: 90X
- **Financial Computing**: 89X
- **Machine Learning**: 20X
- **Video Processing / Transcoding**: 12X
- **Genomics**: 10X

*CPU Comparisons: Xeon c4.8xlarge AWS | Xeon E5-2643 v4 3.4GHz | Xeon Platinum c5.18xlarge AWS | Dual Socket E5-2680 v3 2.5GHz | Xeon f1.16xlarge

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**FEATURES**

<table>
<thead>
<tr>
<th></th>
<th><strong>ALVEO U200</strong></th>
<th><strong>ALVEO U250</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peak INT8 TOPs</strong></td>
<td>18.6</td>
<td>33.3</td>
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<tr>
<td><strong>DDR Memory Bandwidth</strong></td>
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<td><strong>Internal SRAM Bandwidth</strong></td>
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<tr>
<td><strong>Thermal Options</strong></td>
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<td>Passive or Active</td>
</tr>
</tbody>
</table>

**TAKE THE NEXT STEP**

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