AMD ALVEO[™] U50

Adaptable Accelerator Cards for Data Center Workloads



COMPUTE, NETWORKING, AND STORAGE ACCELERATOR FOR CLOUD AND EDGE DATA CENTERS

The AMD Alveo[™] U50 Data Center accelerator cards provide optimized acceleration for workloads in financial computing, machine learning, computational storage, and data search and analytics. Built on AMD UltraScale+[™] architecture and packaged in an efficient 75-watt, low-profile form factor, the U50 includes 8GB HBM2, 100GbE networking, and PCI Express 4.0 and is designed for deployment in any server.

POWERFUL DATA CENTER ACCELERATION

Built for Performance & Efficiency

- Faster application performance from 8GB of HBM memory (32 AXI channel access) and PCIe Gen4 interconnect
- > Low latency network capability through 100G networking with support for
- > 4x 10GbE, 4x 25GbE, or 1x 40GbE or 1x 100GbE

Optimized Performance Across Broadest Range of Workloads

- > Accelerates compute, network, storage workloads
- Maximized application performance as workloads and algorithms evolve through reconfigurable fabric - unlike fixed-architecture alternatives

Deploy in Any Server - From On-premises to Cloud

 Built for scale out architectures and any server - Low-profile form factor and low 75-watt power envelope

Powerful Developer Platform

- > Take advantage of a large and growing library of AMD and partner applications
- > Develop differentiated solutions leveraging <u>AMD's SDAccel™ development</u> <u>environment</u> and <u>Machine Learning Suite</u>



SPECIFICATION

Features	AMD Alveo™ U50
Architecture	UltraScale+
Form Factor	Half-Height, Half length single slot Low-Profile
Look Up Tables	872,000
HBM2 Memory	8GB
HBM2 Bandwidth	316GB/s1
Network Interface	1 x QSFP28 (100GbE)2
Clock Precision	IEEE 1588
PCI Express	PCle Gen3 x 16, dual PCle Gen4 x 8, CCIX
Thermal Solution	Passive
Power (TDP)	75W

1: For A-U50DD-P00G-ES3-G and A-U50-P00G-PQ-G measured 316 GB/s peak HBM2 bandwidth, 201 GB/s nominal 2: During ES, U50 card will have 2 SFP-DD ports

SUPERCHARGING A BROAD RANGE OF DATA CENTER APPLICATIONS

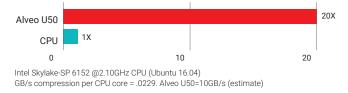
Computational Storage Acceleration

- > Alveo U50 delivers fastest and most flexible compression/ decompression acceleration
- Lower cost Alveo U50 accelerated compression delivers 33% lower cost. (Based on 10GB/sec throughput and 2:1 compression)

Financial Simulation – Grid Computing

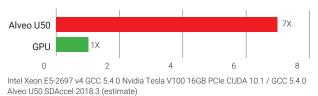
- Fastest time to insight
- Reduced operational costs and maximum power efficiency
- Deterministic latency delivers consistent performance

GZIP Compression Throughput (GB/sec)



Monte Carlo Simulation

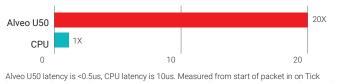
Performance & Efficiency (paths/sec/W)



Ultra-Low Latency Networking

- > 20x lower latency
- > Alveo U50 delivers sub-500ns trading time vs CPU latency of 10us
- > Deterministic throughput timing

Speedup of Trading Timing Market data to TCP message (speedup)



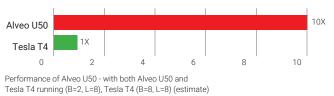
(Market Data) to Start of Packet out on the order to Start of Packet Out on the Order (estimate)

Deep Learning Inference Acceleration

- > 10x Higher throughput translated symbols per second
- > 25x lower latency
- > ignificantly improved power efficiency per node

Speech Translation Throughput

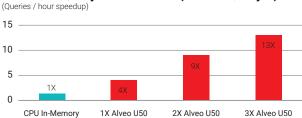
Transformer NMT (symbols/sec speedup)



Data Analytics Acceleration

- > Higher guery throughput & response time than CPU
- > Higher cost effectiveness per node
- Reduced Operational cost

Database Query Acceleration (TCP-H Query 5)



CPU Query time = 210ms, 34k query/hr. Alveo U50 = 24ms, 150k query/hr Intel® Xeon® Platinum 8260 Processor (35.75M Cache, 2.40 GHz) 24 core (estimate)

TAKE THE NEXT STEP

Contact your local sales representative or complete the Product Inquiry form at AMD ALVEO™ U50

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