

DS-1 Universal Acceleration Server (UAS)

Accelerating Compute-Intensive Applications

PRODUCT BRIEF (PRELIMINARY)

(The information on this product is preliminary and subject to change)



Key Features and Benefits

DS-1 Universal Acceleration Server:

- Plug-in configurable Accelerators (PCAs)
- NVXL Acceleration SW Platform
 - Software-defined acceleration
 - Resource pooling, virtualization, dynamic provisioning, and scheduling
- Accelerated HW Kernels for:
 - CaffeNet, AlexNet, VGG, ResNet, GoogLeNet, SqueezeNet, SSD, YOLOv2, GZIP L1/4, ZSTD 1/9, H.265 Encoder, Genomics PairHMM, etc.
- Supports SW Frameworks:
 - Caffe, Caffe2, TensorFlow, FFMPEG, GATK, Apache Spark, etc.
- Supports containers and virtual machines

Target Applications

- Deep Learning
- Machine Learning
- Big Data Analytics
- Transcoding
- Media Processing
- Medical Imaging
- Genomics
- Database Acceleration
- Network and Security Analytics
- Financial

NVXL's DS-1 is a high-density acceleration server featuring up to 24x 2.5" U.2 PCA modules (accelerator and/or storage) for accelerating compute-intensive applications and delivering an order of magnitude better performance when compared to traditional servers.

With unprecedented flexibility and scale, NVXL is transforming the way compute acceleration is deployed, consumed, and delivered. NVXL server and rack solutions deliver industry-leading application acceleration leveraging FPGA acceleration technology. NVXL's platform handles low-level implementation details so that developers and data scientists can be more productive. The platform can scale to thousands of FPGA or ASIC compute acceleration devices connected via a redundant, persistent fabric and can virtualize the compute power required for a myriad of cloud-scale applications.

Application Performance Scaling

NVXL's FlexAccel™ technology allows for scaling application performance by simply attaching more accelerators to an application. The accelerators are dynamically provisioned based on application demand.

Ease-of-Use, Integration, and Deployment

The DS-1 provides optimized and complete integration of industry leading frameworks such as Caffe, Caffe2, TensorFlow, FFMPEG, GATK, Apache Spark, etc., for ease-of-use, integration and rapid deployment. The solution also provides templates and APIs for easier integration with custom software. The web-based management software and command line interface can be used to configure, monitor and manage every DS-1 Universal Acceleration Server as it simplifies the platform administration efforts.

Dynamic Provisioning for Infrastructure Consolidation and for Better Efficiency and TCO

The NVXL Acceleration Layer software supports both static and dynamic provisioning and reconfiguration of PCAs by loading a different bitstream (FPGA image) file that provides the required functionality. Leveraging this capability, PCA supports seamless switch-over to the desired functionality for any application in just seconds. Additionally, this dynamic mode switch-over feature enables consolidation of the infrastructure silos built for specific applications and also helps improve efficiency, reduce datacenter footprint and improve Total Cost of Ownership.

Specifications	
Model	DS-1 UAS
Server CPU	2x Intel Xeon Scalable Processors, 6130, 2.1GHz 16-Core CPUs
Memory	192GB or 384GB, DDR4-2666MHz RDIMM
Storage	2x 256GB M.2 NVMe Flash, Boot
Network Connectivity	4x 10GBase-T, 1x IPMI Optional 2x dual-port 40/50GbE or 2x 100GbE NIC cards
2.5" U.2 Drive Slots	24x
Expansion Boxes (JBOAs*)	2x JBOAs (4-20x single-wide, 4-8x double-wide accelerators per JBOA)
Operating Environment	NVXL Acceleration Platform
OS Support	Ubuntu 16.04
Management	Web-based Mgmt. GUI & CLI
Dimensions	2 RU, 17.2" x 27.76" x 3.5", 43.7 x 70.53 x 8.9 cm
Weight	63lbs (28.6kg)
Power Supply Unit	1500W, Redundant Power Supplies
Input Voltage	100-127Vac, 50-60Hz, 9-13A 200-240Vac, 50-60Hz, 8-10A
Temperature	Operating: 10°C to 35°C (50°F to 95°F) Non-operating: -40°C to 60°C (-104°F to 140°F)
Humidity	Operating: 8% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Altitude	Operating: -1,000 - 10,000 ft. Non-operating: -1,000 - 40,000 ft.
Shock	Operating: 1,000G (max) at 0.5ms Non-operating: 1,000G (max) at 0.5ms
Vibration	Operating: 2.17 Grms (5-700Hz) max Non-operating: 3.13 Grms (5-800Hz) max
RoHS Compliance	Yes
Certifications and Safety	FCC, ICES-003, CE, BSMI, VCCI, C-tick, KC, UL, cUL, CB, CCC

* JBOA – just a bunch of accelerators

NVXL

USA

48073 Fremont Blvd.

Fremont, CA 94538

www.nvxltech.com

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