Lightspeed K80 Server Sales Info

Pricing, maintenance, hardware, options and benchmarks

This document contains server SKUs, maintenance, hardware, options and benchmarking information for the Lightspeed K80 Server™. Links to additional documentation can be found in the last section.

K80 GPU Accelerated Processing
Up to 10X faster than CPU only
1.7X faster than LS K40

Lightspeed servers provide a platform for dramatically accelerating any Vantage workflow. These servers are the fastest way to create high quality media assets and is the preferred platform to offer when selling Vantage.

All Vantage workflows benefit from Lightspeed acceleration. Processes utilizing GPU acceleration includes x.264 compression and all processes of the award winning Lightspeed 16-bit YCbCr 4:4:4:4 Video Processing Library.

Multiscreen, IPTV and General Purpose workflows using x.264

Rapid deployment of multiscreen and IPTV media using x.264 compression can be highly accelerated. Lightspeed servers are the obvious choice for customers who are encoding to x.264 for Multiscreen, IPTV and general transcoding.

Encoders supporting accelerated x.264 processing can be found in the Flip Encoder Service (General Purpose), Multiscreen Encoder Service and IPTV Encoder Service.

Lightspeed 16-bit Video Processing Library (VPL)

Lightspeed's 16-bit YCbCr 4:4:4:4 Video Processing Library accelerate all VPL functions on Lighspeed's GPUs, which means any Vantage workflow will benefit. Workflows performing processor intensive operations will see substantially reduced transcoding times compared to CPU only systems.

Workflows benefiting from VPL acceleration include Standards conversions, Interlaced/Progressive conversions, Up/Down conversions, workflows applying Color conversions, correction or adjustments, workflows performing scaling/sizing, cropping or rotation and any other workflow utilizing the VPL.

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High Volume environments

In addition to x.264 and VPL acceleration a Lightspeed K80 server provides additional GPU RAM capacity and speed allowing it to become faster the more you throw at them. High volume environments are where Lightspeed accelerated workflows will truly shine.

Server SKUs

V-LS-K80-NA-SVR, V-LS-K80-EU-SVR, V-LS-K80-UK-SVR

Lightspeed K80 Server Specifications:
1 RU rack mount chassis; Dual Intel E5-2690 v3 (12 core) Haswell processors; Media Storage drive - 2.0 TB, RAID-0, 10K RP, SATA 6 Gb/s; 32 GB DDR4 memory; Dual 10 Gb Ethernet (copper); NVIDIA TESLA K80 Dual Core GPU with 24 GB VRAM; Dual redundant power supplies; Windows Server 2012 R2 pre-installed.

Maintenance:
Use V-LS-MS and V-LS-ADV-EXP maintenance items with Lightspeed K80 as before; V-LSK80-MS-EXT is used for year two and three.

V-LSK80-MS-EXT

Lightspeed K80 Server, Extended Standard Warranty:
After initial one year limited warranty period: provides one additional year of support for defects occurring during normal use. Includes telephone support and includes all parts, repairs, labor and one-way return ground freight of the unit after it has been repaired. Only available within the first three years of ownership.

Options

Telestream Lightspeed K80 Servers are qualified with the following optional hardware:

Fibre Channel Cards:

- ATTO Celerity FC-81EN Single-Channel 8Gb/s HBA (V-FIBRE-LS-SINGLE)
- ATTO Celerity FC-82EN Dual-Channel 8Gb/s HBA (V-FIBRE-LS-DUAL)
- QLogic QLE2560 Single-Channel 8Gb/s HBA (V-QLOGIC-FC-SINGLE)
- QLogic QLE2562 Dual-Channel 8Gb/s HBA (V-QLOGIC-FC-DUAL)

Ethernet Network Interface Cards:

- Intel PRO/1000 PT Quad Port Server adapter (V-ETH-LS-QUAD)
- ATTO FastFrame NS-11 Single-Channel SFP+ 10GbE (V-10GBESPF-LS-SGL)
- ATTO FastFrame NS-12 Dual-Channel SFP+ 10GbE (V-10GBESPF-LS-DUAL)
- MYRICOM 10G-PCIE-8B-S+E 10GbE (V-MYRICOM-10G-SGL)
- MYRICOM 10G-PCIE2-8B2 Dual Port 10GbE (V-MYRICOM-10G-DUAL)

Lightspeed Spare Parts Kit:

- Lightspeed K80; Includes spare 120 SSD OS drive, 1TB SATA Media Drive, 8GB DIMM, Power Supply; V-LSK80-PARTKT

Hardware Specifications

Telestream Lightspeed K80 Servers ship with the following hardware configuration:

- 1RU server with 1600W Dual redundant power supplies (80+ Platinum Level 94%+)
- Dual 12-Core Intel Haswell CPU 2.6Ghz (E5-2690 v3) with HTT (48 virtual cores)
- 32GB RAM (4 X 8GB 1600Mhz Registered ECC DDR4)
- NVidia Tesla K80 Dual-core Kepler-based GPU card with 24GB RAM (12GB per GPU core)
- OS – Windows Server 2008 R2 or 2012 R2 - Standard Edition 64-bit (120GB SSD partition)
- Media Drive – 2.0TB RAID-0 (Two enterprise class 1TB SATA 6Gb/s 10K RPM drives)
- Dual RJ45 10GBase-T ports (Intel X540 Dual Port 10GBase-T with support for 10BASE-T, 100BASE-TX, and 1000BASE-T)
- Two (2) USB 3.0 ports
- Three (3) available PCI slots, 2 (x16) PCI-E 3.0 & 1 (x8) PCI-E 3.0 low-profile slot (see qualified options in this document)
- VGA video connector
- RoHS Compliant
- Physical Dimensions – Height 1.7" (43mm) x Width 17.2" (437mm) x Depth 30.6" (716mm)
- Gross Weight 50lbs (22.9 kg)

Power and Temperature requirements:

- Operating Temperature: 10°C to 35°C (50°F to 90°F)
- Non-operating Temperature: -40°C to 70°C (-40°F to 158°F)
- Maximum power is 6.0 amps (660 watts) with both GPUs and CPUs running at 100%
- Cooling: Servers generate 2252 BTU/h with both GPUs and CPUs running at 100%

Thermal testing:
With all GPUs and CPUs running at 100% load for three hours

- External temperature stable at 30°C
- GPU temperature stable at 50°C
- CPU temperatures stable at 70°C or lower

Certifications:

- FCC, CE, UL or CSA, CB, VCCI, Ctick
- Certifications are valid for the following regions: North America, EU, Japan, AUS/NZ

Benchmark testing

The benchmark results below can be used for determining the rough requirements and performance of the Lightspeed servers. There are many factors that can affect the results of particular workflows. Those factors can be the speed of the storage location where the source file resides and where the outputs are written, the medium used to connect to shared storage location (1Gb or 10Gb Ethernet, Fibre, direct attached), CPU cores and speed, and GPUs being used.

Vantage workflows will utilize the GPU for x264 compression and for all VPL processing. All workflows will benefit from the LS K80 server's GPU if the Lightspeed 4:4:4:4 16-bit VPL is selected.

CPU only results were gathered using the LS K80 server's Dual 12 core Haswell processors with all GPU processing disabled. The LS K40 and LS K80 results are from the default configuration of the respective servers using local media storage.

Multiscreen encoder

Simple 5-layer Multi screen transcode
This workflow creates H.264 (x.264) output files in a variety of frame size. All x.264 and VPL processes are accelerated using Lightspeed's GPUs (all job completion avg – minutes; from 60 minute source)
This workflow creates 5 different H.264 VOD outputs designed for varying display screen types from large to small. The numbers here represents the average time that all jobs took to complete. For instance for 'x' jobs submitted concurrently this number represents the average time for 'x' jobs to finish. As concurrency increases the LS servers utilizes more of the available CPU and GPU to process more and more media. The results show a dramatic difference when going from CPU only processing, as well as a very significant boost when comparing the LS K40 to the LS K80. This highlights the speed of the K80 and its increased efficiency in high job load scenarios.

	CPU only	LS K40	LSK80
Single job	185	31	21
4 concurrent jobs	229	48	29
6 concurrent jobs	389	67	40

HLS/ABR/H.264 – Short Form

Apple HLS and Multiscreen X264
This workflow creates H.264 (x.264) output files in a variety of frame sizes and frame rates. All x.264 and VPL processes are accelerated using Lightspeed's GPUs (Total time to complete 200 jobs – minutes; 30 second source files)
This workflow creates an Apple HLS package with 14 bit rate/frame size elements as well as 12 H.264 Multiscreen outputs. This test submits 200 30 second clips all at once. The test completes when all source files have been completed. The numbers here represents the time it took to complete all 200 jobs.

	CPU only	LS K40	LSK80
Process 200 jobs	235	50	35

HLS/ABR/H.264 – Long Form

Apple HLS and Multiscreen X264
This workflow creates H.264 (x.264) output files in a variety of frame sizes and frame rates. All x.264 and VPL processes are accelerated using Lightspeed's GPUs (Total time to complete 25 jobs – minutes; 60 minutes source files)
This workflow creates an Apple HLS package with 14 bit rate/frame size elements as well as 12 H.264 Multiscreen outputs. This test submits 25 60 minute clips all at once. The test completes when all source files have been completed. The numbers here represents the time in minutes it took to complete all 25 jobs.

	CPU only	LS K40	LSK80
Process 25 jobs	3200	580	440

Temporal and Spatial conversion
MXF XDCAM HD 1080i60 to QuickTime XDCAM HD 720p50

ADV Motion Adaptive Compensated de-interlacing
This workflow transcodes from XDCAM at 1080i60 to XDCAM at 720p50. All VPL processes used to make this transformation are accelerated using Lightspeed's GPUs (all job completion avg – minutes; from 60 minute source)
This workflow demonstrates temporal and spatial conversion, as well as de-interlacing. All VPL processing is Lightspeed accelerated using the GPU. The numbers here represents the average time that individual jobs took to complete. For instance for 'x' jobs submitted concurrently this number represents the average time for 'x' jobs to finish.

As concurrency increases the LS servers utilizes more of the available CPU and GPU to process more and more media. This test shows a workflow that converts a 1080i60 input to a 720p50 output. Additional filters were applied for Frame Rate Conversion and Advanced Motion Adaptive Deinterlacing. The results show a dramatic difference when going from CPU only processing and a significant boost when comparing the LS K40 to the LS K80.

	CPU only	LS K40	LSK80
Single job	75	25	15
4 concurrent jobs	115	36	29
6 concurrent jobs	153	55	48

Standards Conversion/Down convert - 1080i60 to PAL
QuickTime DNxHD 1080i60 to MXF OP1a IMX50 25i
This workflow down converts DNxHD at 1080i60 to PAL IMX50. All VPL processes used to make this transformation are accelerated using Lightspeed's GPUs
*(all job completion avg – minutes; from 60 minute source)*This benchmark test converts a DNxHD 1080i60 HD source file into IMX50 PAL. All VPL processing required for frame rate and frame size conversions are Lightspeed accelerated on the GPU. The numbers here represents the average time that individual jobs took to complete. For instance for 'x' jobs submitted concurrently this number represents the average time for 'x' jobs to finish. As concurrency increases he LS K80 utilizes more of the available CPU and GPU to process more and more media. The results show that both the LS K40 and LS K80 servers provide a big boost in performance, particularly in high job load scenarios.

	CPU only	LS K40	LSK80
Single job	45	11	9
concurrent jobs	76	18	13
6 concurrent jobs	182	27	19

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