Lightspeed K80SSD Server
Operating Specification

Introduction
This document outlines the tested operating specifications for Telestream® Lightspeed K80SSD Server™

Hardware/Software Specifications
Telestream Lightspeed K80SSD Servers have been tested with the following hardware/software configuration:

- *1RU server with 1600W Dual redundant power supplies (80+ Platinum Level 94%+)*
- *Dual Twelve Core Intel Haswell CPU 2.6Ghz (E5-2690 v3) with HTT (48 virtual cores)*
- *32GB RAM (4 X 8GB 1600Mhz Registered ECC DDR4)*
- *1 NVidia Tesla K80 Dual GPU card (4992 NVIDIA CUDA cores) with 24GB GDDR5 RAM (12GB per GPU core)*
- *OS – Windows Server 2012 R2 - Standard Edition 64-bit (150GB SSD partition), Server 2008 R2 optional*
- *Vantage software - v6.2 thru v6.3 UP5*
- *Media Cache – 1.2TB RAID-1 (Two enterprise class 1.2TB SATA 6Gb/s SSD drives)*
- *Dual Port 10GbE (Intel X540 10GBase-T compatible with 10GBASE-T, 100GBASE-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 below)*
- *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)*

Telestream Lightspeed K80SSD 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)

NOTE: In order to ensure optimal product performance and warranty coverage, it is important that Telestream products be used in accordance with the product policy. It is critical that our product policy is adhered to when using add-in cards. Telestream policy states:

- Add-in card(s) are to be installed by Telestream, or an authorized agent, at or before commissioning.
- Only Telestream qualified add-in cards can be used. For the most up-to-date list refer to the Lightspeed Server product sheet (http://www.telestream.net/pdfs/datasheets/dat-Vantage-Lightspeed-Server.pdf). Using untested and unknown add-in cards will void the product warranty.

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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)
- Operating Relative Humidity: 8% to 90% (non-condensing)
- Non-operating Relative Humidity: 5% to 95% (non-condensing)
- 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%

Server Noise Levels:
- *Min (GPUs and CPUs at idle): at 3 feet - 65dB*
- *Max (CPUs and GPUs running at 100%): at 3 feet - 90dB*

Thermal testing:
- With all GPUs and CPUs running at 100% load for three hours
    - External temperature stable at 30° C
    - GPU temperature stable at 64° C or lower
    - CPU temperatures stable at 64° C or lower
    - Successful completion of transcoding jobs in this environment (see Stress Tests below)

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

Stress Testing

Sustained CPU/GPU Transcoding, Hard Drive Stress Test:
Two Lightspeed K80SSD Servers (running Transcode Multiscreen) in an Array successfully performed 100,000 transcode jobs with 100% up-time.

> **NOTE**: Performed by Vantage Transcode Pro on two Lightspeed K80SSD Servers with SQL Standard. Each job included a 5-second transcode to 3Mb MP4 from an MOV ProRes source; jobs were set to expire after one hour to avoid excessive database growth.

Sustained GPU Transcoding Stress Test:
One Lightspeed K80SSD Server (running Transcode Multiscreen) successfully performed non-stop transcoding of 3-hour input files for one week. Each input file was converted to 10 independent output video streams and 14 output packages (150 hours of output video per input). Outputs were randomly checked for lip sync and video/audio quality.

> **NOTE**: Performed on one Lightspeed K80SSD Server with SQL Standard as the primary database. Each job included converting a 3-hour MOV ProRes source, creating 10 independent output streams (1080p24 3Mb, 2Mb, 1Mb; 720p24 2Mb, 1Mb, 480p 2Mb, 1Mb, 240p 1Mb, 700Kb, 400Kb) and packaging into the following containers (one MP4 for each stream, HLS, HSS, Dash, HDS including all above streams)