

# Wowza Streaming Engine Transcoder benchmarks: Transrate 720p

## Input test stream

- **Video Codec:** H.264
- **Video Frame Size:** 1280x720
- **Video Frame Rate:** 24 fps
- **Video Bitrate:** 5.588 Mbps
- **Audio Codec:** AAC
- **Audio Sample Rate:** 48 kHz
- **Audio Channels:** Stereo
- **Audio Bitrate:** 97 kbps

## Test servers

### Server 1

- **Processor:** Single Intel Xeon CPU E3-1285 V3 @ 3.60GHz
- **Cores/Threads:** 4/8
- **Memory:** 32 GB
- **Motherboard:** Supermicro X10SAE
- **OS:** Linux (64-bit)
- **Java:** Java 8 (64-bit)
- **GPU/Acceleration:** Built-in HD4600 with Intel Quick Sync (Haswell)

### Server 2

- **Processor:** Single Intel Xeon CPU E3-1285 V3 @ 3.60GHz
- **Cores/Threads:** 4/8
- **Memory:** 32 GB
- **Motherboard:** Supermicro X10SAE
- **OS:** Linux (64-bit)
- **Java:** Java 8 (64-bit)
- **GPU/Acceleration:** NVIDIA Quadro M5000

### Server 3

- **Processor:** Single i7 6700k @ 4.0GHz
- **Cores/Threads:** 4/8
- **Memory:** 16 GB
- **Motherboard:** Supermicro X10SAE
- **OS:** Windows 10(64-bit)
- **Java:** Java 8 (64-bit)
- **GPU/Acceleration:** Built-in HD4600 with Intel Quick Sync (Skylake)

### Server 4

- **Processor:** Single i7 6700k @ 4.0GHz
- **Cores/Threads:** 4/8
- **Memory:** 16 GB
- **Motherboard:** Supermicro X10SAE
- **OS:** Windows 10 (64-bit)
- **Java:** Java 8 (64-bit)
- **GPU/Acceleration:** NVIDIA Quadro M4000

### Server 5

- **EC2 Instance:** AWS G2 2.2xlarge
- **Cores/Threads:** 12/24
- **Memory:** 32 GB
- **8 EC2 Compute Units:** 4 virtual cores with 2 EC2 Compute Units each
- **OS:** Amazon Linux
- **Java:** Java 8 (64-bit)
- **EC2 Instance:** G2 2.2xlarge
- **GPU/Acceleration:** NVENC

### Server 6

- **EC2 Instance:** AWS G2 2.8xlarge
- **Cores/Threads:** 12/24
- **Memory:** 32 GB
- **8 EC2 Compute Units:** 4 virtual cores with 2 EC2 Compute Units each
- **OS:** Amazon Linux
- **Java:** Java 8 (64-bit)
- **EC2 Instance:** G2 2.8xlarge
- **GPU/Acceleration:** NVENC

### Server 7

- **EC2 Instance:** AWS C4.8xlarge
- **Memory:** 15 GB
- **8 EC2 Compute Units:** 4 virtual cores with 2 EC2 Compute Units each
- **Java:** Java 7 (64-bit)
- **OS:** Amazon Linux
- **EC2 Instance:** C4.8xlarge
- **GPU/Acceleration:** None

### Server 8

- **Azure:** Azure-D4-v2
- **Memory:** 60 GB
- **20 EC2 Compute Units:** 32 virtual cores with 3.37 EC2 Compute Units each
- **Java:** Java 7 (64-bit)
- **OS:** Azure Linux
- **Instance Type:** Azure-D4-v2
- **GPU/Acceleration:** None

### Server 9

- **Google:** GCP-n1-highcpu-32
- **Memory:** 60 GB
- **20 EC2 Compute Units:** 32 virtual cores with 3.37 EC2 Compute Units each
- **Java:** Java 7 (64-bit)
- **OS:** Google Linux
- **EC2 AMI:** GCP-n1-hoghcpu-32
- **GPU/Acceleration:** None

Note:

The hyphen (-) character indicates that the streams couldn't be transcoded due to excessive CPU utilization.

Input	Output	Server 1 Default	Server 1 Quick Sync	Server 2 NVENC	Server 3 Default	Server 3 Quick Sync	Server 4 NVENC	Server 5 NVENC	Server 6 NVENC	Server 7 Default	Server 8 Default	Server 9 Default
1x720p @ 5.588 Mbps	1x720p 1x360p 1x240p 1x160p	4%	5%	4%	6%	2%	4%	3%	1%	11%	18%	4%
2x720p @ 5.588 Mbps	2x720p 2x360p 2x240p 2x160p	12%	12%	9%	11%	6%	6%	8%	3%	21%	32%	8%
3x720p @ 5.588 Mbps	3x720p 3x360p 3x240p 3x160p	17%	16%	17%	33%	10%	13%	10%	4%	36%	52%	12%
4x720p @ 5.588 Mbps	4x720p 4x360p 4x240p 4x160p	27%	25%	20%	44%	14%	17%	17%	5%	54%	61%	14%
5x720p @ 5.588 Mbps	5x720p 5x360p 5x240p 5x160p	30%	33%	26%	51%	19%	20%	20%	7%	63%	79%	25%
6x720p @ 5.588 Mbps	6x720p 6x360p 6x240p 6x160p	33%	40%	30%	59%	26%	27%	23%	7%	70%	-	28%
7x720p @ 5.588 Mbps	7x720p 7x360p 7x240p 7x160p	39%	43%	33%	66%	35%	36%	28%	11%	-	-	30%
8x720p @ 5.588 Mbps	8x720p 8x360p 8x240p 8x160p	43%	51%	41%	-	46%	45%	36%	12%	-	-	40%
9x720p @ 5.588 Mbps	9x720p 9x360p 9x240p 9x160p	49%	61%	53%	-	53%	52%	44%	14%	-	-	42%
10x720p @ 5.588 Mbps	10x720p 10x360p 10x240p 10x160p	66%	70%	67%	-	66%	59%	52%	15%	-	-	52%
11x720p @ 5.588 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	65%	66%	16%	-	-	57%
12x720p @ 5.588 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	18%	-	-	60%
13x720p @ 5.588 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	20%	-	-	63%
14x720p @ 5.588 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	23%	-	-	-