

Wowza Streaming Engine Transcoder benchmarks: Transrate 1080p

Input test stream

- **Video Codec:** H.264
- **Video Frame Size:** 1920x1080
- **Video Frame Rate:** 24 fps
- **Video Bitrate:** 9.7208 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		Server 3								
		Server 1 Default	Quick Sync	Server 2 NVENC	Server 3 Default	Quick Sync	Server 4 NVENC	Server 5 NVENC	Server 6 NVENC	Server 7 Default	Server 8 Default	Server 9 Default
1x1080p @ 9.720 Mbps	1x720p 1x360p 1x240p 1x160p	11%	7%	7%	9%	5%	6%	5%	2%	15%	33%	5%
2x1080p @ 9.720 Mbps	2x720p 2x360p 2x240p 2x160p	14%	13%	7%	14%	11%	8%	12%	5%	25%	52%	8%
3x1080p @ 9.720 Mbps	3x720p 3x360p 3x240p 3x160p	39%	20%	23%	20%	17%	16%	22%	6%	40%	75%	13%
4x1080p @ 9.720 Mbps	4x720p 4x360p 4x240p 4x160p	45%	31%	27%	33%	24%	20%	33%	9%	59%	-	17%
5x1080p @ 9.720 Mbps	5x720p 5x360p 5x240p 5x160p	68%	43%	36%	45%	30%	24%	37%	10%	60%	-	20%
6x1080p @ 9.720 Mbps	6x720p 6x360p 6x240p 6x160p	-	46%	42%	57%	36%	31%	40%	11%	67%	-	31%
7x1080p @ 9.720 Mbps	7x720p 7x360p 7x240p 7x160p	-	51%	48%	68%	43%	37%	46%	16%	-	-	36%
8x1080p @ 9.720 Mbps	8x720p 8x360p 8x240p 8x160p	-	56%	54%	-	49%	50%	54%	17%	-	-	43%
9x1080p @ 9.720 Mbps	9x720p 9x360p 9x240p 9x160p	-	61%	58%	-	55%	56%	70%	19%	-	-	53%
10x1080p @ 9.720 Mbps	10x720p 10x360p 10x240p 10x160p	-	67%	65%	-	62%	65%	-	20%	-	-	61%
11x1080p @ 9.720 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	22%	-	-	69%
12x1080p @ 9.720 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	27%	-	-	-
13x1080p @ 9.720 Mbps	10x720p 10x360p 10x240p 10x160p	-	-	-	-	-	-	-	30%	-	-	-