

System Requirements - Transcoding Server

Below is a rough guideline for server hardware requirements for a transcoding server

For 10 Concurrent Streams

- **CPU:**
 - **6-8 cores**
 - This gives headroom to run roughly 20 concurrent encoding tasks (2 per stream) plus manage the passthrough.
 - **RAM:**
 - **8 GB minimum** (16 GB recommended)
 - Ensures smooth operation with multiple encoder processes and OS overhead.
 - **Network:**
 - **1 Gbps NIC**
 - *Estimated Ingress:* $10 \times 4 \text{ Mbps} \approx 40 \text{ Mbps}$
 - *Estimated Egress:* $10 \times (1.5 + 2.5 + 4) \approx 80 \text{ Mbps}$
 - The 1 Gbps link easily covers this with room for spikes.
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For 100 Concurrent Streams

- **CPU:**
 - **16-32 cores**
 - Each stream produces 2 CPU-intensive transcoding jobs; a larger core count is critical. The higher range is advised for pure software encoding.
- **RAM:**
 - **16 GB minimum** (32 GB recommended)
 - More concurrent encoding tasks will benefit from extra memory.
- **Network:**
 - **10 Gbps NIC (or aggregated connections)**
 - *Estimated Ingress:* $100 \times 4 \text{ Mbps} \approx 400 \text{ Mbps}$
 - *Estimated Egress:* $100 \times \sim 8 \text{ Mbps} \approx 800 \text{ Mbps}$
 - Although calculated bitrates are below 1 Gbps, using a 10 Gbps NIC provides ample headroom for overhead, bursty traffic, and potential increases in bitrate if you

choose higher-quality settings.

Additional Considerations

- **Hardware Acceleration:**

If you can use GPUs or dedicated encoding hardware (NVENC aka NVIDIA), you can significantly reduce CPU requirements. For large-scale transcoding, this is often a more cost-effective and energy-efficient approach.

- **Scalability:**

For very high concurrency (hundreds to thousands of streams), consider a multi-server or cloud-based transcoding farm that distributes the load rather than relying on a single box.

- **Encoding Settings & Quality:**

More aggressive encoding quality settings will increase CPU load. Tailor these recommendations based on your specific quality versus resource trade-offs.

- **Redundancy & Future Growth:**

Always plan with extra headroom for unexpected spikes and future scaling needs.

These guidelines provide a starting point to help you size your hardware. Actual requirements can vary significantly depending on your exact situation.

Revision #2

Created 18 February 2025 03:34:41 by Jamie W

Updated 18 February 2025 03:49:26 by Jamie W