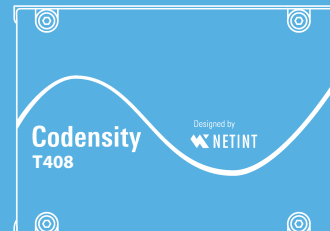
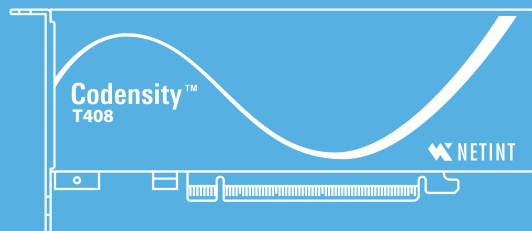


# T408 Video Processing Unit.

## High Density Video Transcoding for x86 and Arm Servers.

The NETINT T408 is a real-time, low-latency video transcoder for x86 and Arm-based servers. Available in U.2 and PCIe card form factors, the T408 enables hyper-scale video platforms to easily transition from software to hardware encoding and benefit from a 10x TCO reduction, 10x increase in encoding density and 20x carbon footprint reduction compared to CPU-based software video encoding.

The T408 is based on the NETINT Codensity G4 ASIC that supports H.264 and HEVC video encoding at up to 4K resolution with 10-bit HDR. The NETINT T408 Video Transcoder plugs into x86 or Arm enterprise-class servers offering an easy upgrade path from software to hardware-based encoding. The high throughput of the T408 enables ultra-low latency encoding of 40 broadcast quality 1080p60 streams in a 1RU server.



## Applications



OTT / IPTV



Video Conferencing



Cloud Gaming



AR / VR



Home Monitoring



Social  
Live Streaming



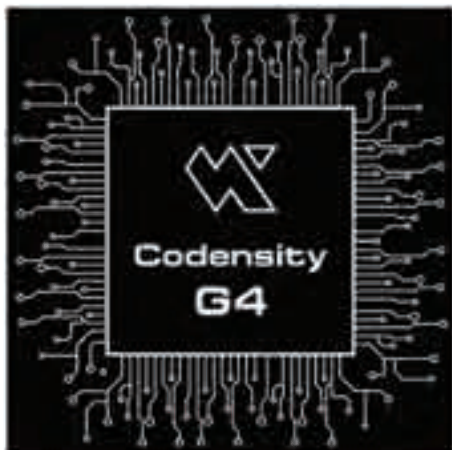
Live Streaming



Surveillance



AI Acceleration



# Codensity™ G4

The core of NETINT's Codensity technology is an in-house built ASIC to increase encoding density compared to CPU based software encoding solutions. This increase in encoding density expands the number of channels that can be encoded without increasing the rack footprint. Reduced power and HVAC cost means a lower TCO and higher density can be achieved without sacrificing video quality or latency.

## FEATURES and BENEFITS



### Ultra-Low Latency Performance

Optimized for applications including cloud gaming and AR/VR that require low latency encoding performance.



The T408 is available in U.2 or PCIe form factors simplifying the transition from CPU software to ASIC based encoding.

Flexible form-factor options simplify integration into existing servers.



High Density 4K60 or 4x 1080p60 encode/decode/transcode per module

Higher encoding density per server with reduced server rack footprint.



### FFmpeg-compatible SDK

Simplified system integration.



### H.264/H.265 Real-Time Encoding

Can be used in a wide variety of encoding applications:

- OTT/IPTV
- Video Conferencing
- Cloud Gaming
- AR/VR
- Home Monitoring
- Social Live Streaming
- Live Streaming
- Surveillance
- AI Acceleration



### Reduces bandwidth up to 50%

Reduced bandwidth costs with increased network capacity.

# Designed for the Cloud

## High Density Real-time UHD Video Transcoding

T408 modules take full advantage of ASIC-based video processors inside the Codensity G4 SoC technology to support a H.264/HEVC transcoding throughput of 60 fps of 4K UHD video, or 4x 1080p60 streams per T408 module. At lower resolutions, even more simultaneous streams can be supported. By offloading complex encode/decode processing to the ASIC, the T408 video transcoders minimize host CPU utilization. The result is a significant improvement in real-time transcoding density compared to any software or GPU-based transcoding solution.

## Integrates into Enterprise-Class NVMe Servers

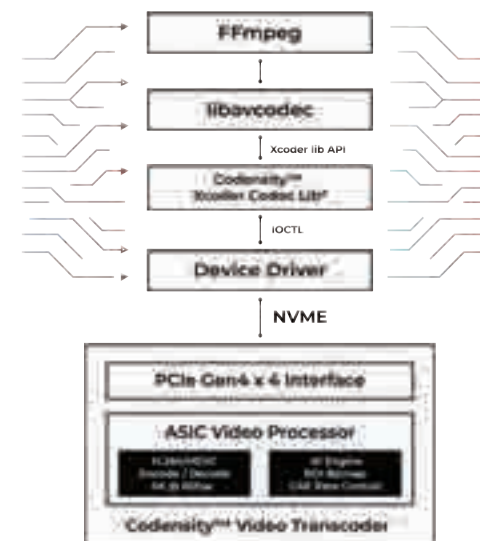
Available in both U.2 and PCIe card form factors, the T408 offers a simple upgrade path from CPU based software to ASIC video encoding on any x86 or Arm server.



A mid-range Intel® multi-core 1U server with 10x NVMe bays can host 10x T408 transcoder modules supporting 40x simultaneous 1080p60 real-time transcoding sessions.

## Software Integration with FFmpeg Library Support

Many video processing and transcoding applications developers are familiar with FFmpeg, an open source software library with a vast suite of video processing functions. The NETINT T408 includes a highly efficient FFmpeg compatible SDK, requiring operators to simply apply a FFmpeg/libavcodec patch to complete the integration. The libavcodec patch on the host server functions between the T408 NVME interface and the FFmpeg software layer, allowing existing video transcoding applications already using FFmpeg to achieve quick and significant performance and capacity upgrades with Codensity T408 Transcoders.



## High Power Efficiency

Each Codensity T408 U.2 module consumes only 7W of power at full load. Plug 10x T408 U.2 modules into a 1RU server, and you have a highly efficient video transcoding cloud server.

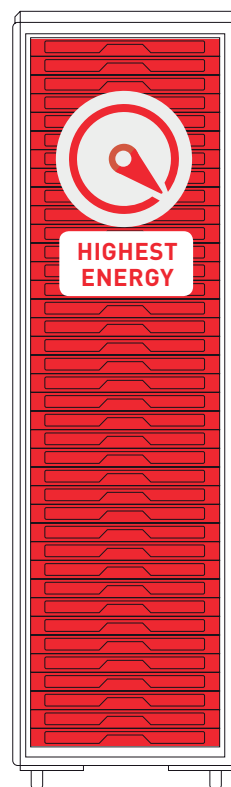
# Total Cost of Ownership

The NETINT T408 enables a reduction in TCO for hyperscale cloud platforms and video service providers.

NETINT's Codensity technology uses a purpose built ASIC to increase encoding density compared to software-based solutions. This increase in encoding density expands the number of channels that can be encoded without increasing the rack footprint. Reduced power and HVAC cost means a lower TCO and higher density can be achieved without sacrificing video quality or latency.

## Video Encoding with Lowest TCO and Highest Density

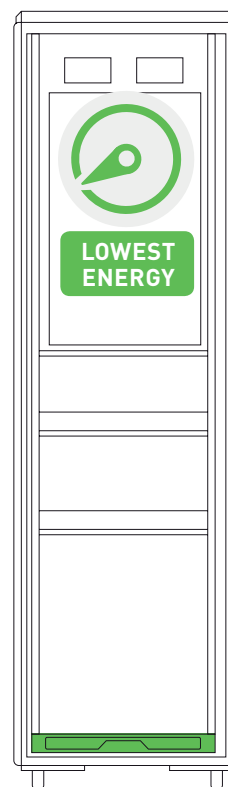
58W Total Server Power Per Stream



**\$580,535**

Software on CPU\*

3W Total Server Power Per Stream



**\$52,403**

NETINT Video Processing Units\*

\$525,000 operational cost savings per year based on 1,000 live streams.

NETINT T408s use one-tenth the rack space for the same number of streams as compared with CPU-based video encoders.

NETINT video processing units use 20X less energy than CPU powered video transcoding systems.

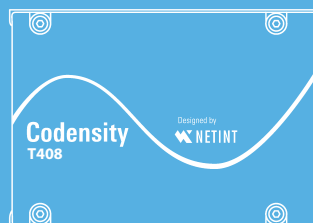
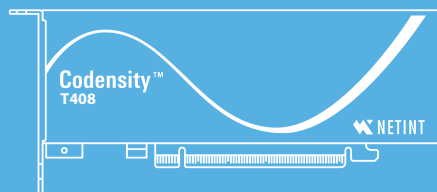
\*Total Annual Operating Cost Per 1,000 Streams

# TECHNICAL SPECIFICATIONS



## NETINT T408 Video Processing Unit Technical Specifications

	T408 - U.2	T408 - AIC
Form Factor	U.2 (SFF-8639)	AIC (HHHL)
Interface	PCIe 3.0 x4	
Protocol	NVMe	
Power Consumption (Typical)	7W	
Usage	24/7 Operation	
Operation Temperature	0 degrees C to 70 degrees C	
RoHS Compliance	Meets requirements of European Union (EU) ROHSCompliance Directives	
Product Health Monitoring	Self-Monitoring, Analysis, and Reporting Technology (SMART) commands Temperature Monitoring and Logging	
Hardware Interface	Available U.2 or PCIe slot	



	H.264 AVC Encode/Decode	H.265 HEVC Encode/Decode
Profile	CBP / BP / XP / MP / HiP / HiP10	Main / Main10
Level	1 to 6.2	1 to 6.2 Main-Tier
Max Resolution	8192 x 5120	
Min Resolution	32 x 32	
Scan Type	Progressive	
Bitrate	64kbit/s to 700Mbit/s	
Software Integration	FFmpeg SDK Direct Integration with LibXcoder API	
Capacity	4K @ 60 fps   1080p @ 240 fps	
Advanced Features		
Region of Interest (ROI)	ROI permits the quality of some regions to be improved at the expense of other regions	
Closed Captioning	T408 supports EIA CEA-708 closed captions for H.264 and H.265 encode and decode	
High Dynamic Range (HDR)	T408 supports HDR10 and HDR10+ for H.264 and H.265 encode and decode	
Low Latency	T408 supports sub-frame latency	
IDR Insert	Forced IDR frame inserts at any location	
Flexible GOP Structure	8 presets plus customizable GOP structure	



# About

NETINT Technologies is an innovator of ASIC-based video processing solutions for low-latency video transcoding that operates on x86 and ARM-based servers. Users of NETINT solutions realize a 40X increase in encoding density and a 80X reduction in carbon emissions compared to CPU-based software encoding solutions.

For more information, visit [www.netint.ca](http://www.netint.ca)

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