

Scalable Video Encoding Pools for the Data Center

COMPOSABLE DISAGGREGATED INFRASTRUCTURE FOR VIDEO



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Introduction

With Liqid's Composable Disaggregated Infrastructure (CDI), ASIC-based video encoding is as flexible as software running on general-purpose CPUs. Say goodbye to hardware walled gardens where video encoding operations are limited by the availability of instances containing the necessary hardware.

Using Liqid technology, any machine on the network can access NETINT's purpose-built Video Processing Units, allowing hyper-scale video platforms, social networks, and public clouds to provision video encoding and processing resources to meet their performance and capacity requirements without limitation.



Composable Disaggregated Video Encoding Infrastructure

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Composable Disaggregated Video Encoding technology opens up hardware-based video solutions to be as flexible and available as software by allowing any machine in the data center to natively access all VPUs installed on the network regardless of their physical location.

The number of hardware encoders that can be physically installed into a chassis is often a limiting factor to optimally scaling servers for video encoding. With **Liqid's Composable, Disaggregated Infrastructure,** hardware based video encoders are not installed in the server chassis, but are instead disaggregated, and placed into external PCIe enclosures, called expansion chassis that are available as compute resources.

Video platforms can have as many expansion chassis as are required to hold their video encoding resources. Interconnecting all the video encoding resources to be composed is accomplished with a fabric, providing every resource direct access to each other. For connections between chassis and racks to be transparent to video encoding workloads, Liqid leverages high bandwidth technology, including PCIe (Gen 4 and Gen 3) and 100GbE.

Once resources are disaggregated and connected over a distributed fabric, Liqid's composable software is used to create bare metal servers composed with video encoding resources tuned to meet any workload requirement, in seconds.

This unique technology enables large scale video streaming services and platforms to adopt NETINT VPUs and benefit from a greater than 20x cost and density advantage with ASICs without giving up operational flexibility and agility.



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Liqid's Composable, Disaggregated Infrastructure brings a new level of flexibility for hardware-based video solutions by enabling any machine in the data center to natively access all VPUs installed on the network regardless of their physical location. This flexible architecture greatly expands access to advanced video processing functions found only in NETINT's hardware based VPUs, enabling greater flexibility, efficiency and scalability across any video platform.



The unpredictability of stream sessions and the widely varying number of viewers and participants in applications including cloud gaming, live events and social live video requires video platform operators to have the ability to dynamically allocated video encoding resources for every job making Liqid's CDI an ideal solution for dynamic encoding environments.





Video Processing Units

ASIC-based High Density Video Transcoders for x86 and Arm Servers.

NETINT's T432 and Quadra T1A/T2A Video Processing Units (VPUs) bring real-time, ultra-low latency video encoding and transcoding to x86 and Arm-based servers. NETINT VPUs enable hyper-scale video paltforms to easily transition from software to hardware encoding and benefit from a more than 20x TCO and carbon footprint reduction with a 20x encoding advantage compared to CPU-based software video encoding.

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Powered by NETINT Codensity G4 and G5 ASICs, NETINT VPUs support H.264, HEVC, and AV1 at resolutions up to 8K with 10-bit HDR. Establishing an all-new industry benchmark, using NETINT VPUs, as many as 320 live broadcast-quality channels can be encoded on a Liqid CDI system comprised of 2x 4420 expansion chassis and a 1RU server.



NETINT VPU Benefits

Ultra High Density

Twenty times increase in video encoding density as compared to software.

8K/4K/UHDTV

Supports a wide variety of streaming applications.

Ultra-Low Latency

Enables Interactive video applications including Cloud Mobile Gaming, AR and VR.

AI Deep Neural Network Engines

Enables advanced processing including object detection, classification, segmentation and ROI for image quality improvement and content adaptive rate control.

AV1, HEVC, H.264

Multi-format Transcoding, Encoding, and Decoding.

Real-Time Encoding

Optimized for live streaming and interactive video applications.

Scalable

High capacity encoding throughput for rapid deployment of additional channels.

Video 2D Processing Engines

Video cropping, padding and scaling for encoding ladder generation and image composition, video overlay, YUV and RGB conversion.

For more information on **NETINT VPU solutions**, contact us at:

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www.netint.com