Lanner and Flussonic Demonstrate Carrier-Grade Video Streaming

By integrating high-performance acceleration cards for Flussonic CODER, Lanner demonstrates its flexible modular network appliances when it comes to tackling the most demanding challenges in video streaming.

Overview

Video streaming has skyrocketed and is showing no sign of slowing down. Today, video streaming is, by far, the biggest consumer of Internet bandwidth worldwide and modern Carrier-Grade video streaming systems must be able to handle the increasing amount of data, parallel processing, and high-definition video transcoding.

In consequence, Lanner Electronics has been enabling system integrators to create flexible high-performance universal video transcoding appliances and streaming with modular and scalable architectures to satisfy the growing requirements of all its clients.

Challenge

Hundreds of millions of people around the world use video streaming services every day. From popular online video-sharing platforms and live video game streams to IPTV and cloud based surveillance systems. Therefore, creating a service that is reliable and easy to maintain is necessary in order to fulfill today's high expectations.

It is not a secret that video recording, processing, and streaming requires powerful parallel computing hardware acceleration. Thus, purpose built bare-metal hardware offers a unique advantage for video processing solutions. By taking advantage of the power of dedicated video hardware accelerators and the parallel processing effectiveness of GPUs, you can create incredibly powerful, efficient, scalable and format/protocol-agnostic video processing tools.

Solution

The system is based on the Lanner's modular NCA-5000 network series platforms, specifically the NCA-5510, a 1U rackmount chassis server that provides a cost-effective solution for network edge deployments, even in the customer's premises.

Flussonic CODER video processing solution is used for modular, multi-format and multi-protocol transcoding, packaging and delivery. NVIDIA's Jetson TX2 SOM are used to fully offload Real-Time video transcoding.
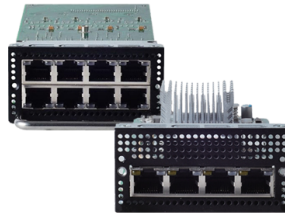
Carrier-Grade Video Streaming Solution
Video capture, recording, transcoding and delivery

Video Surveillance
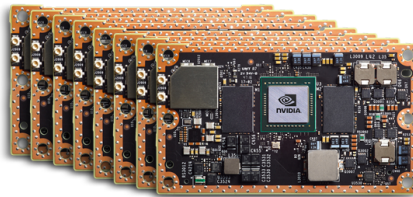
Live Streaming

Cloud Video

IP TV

Lanner NCA-5510
Intel® X86 Rackmount Appliance with Dual Hot-Swappable Power Supplies
4x Expandable Network Module Slots
Full-Height PCIe 16x Expansion

Modular Networking
Pick and Choose Modules to Fit Video Data Streaming Needs

Flussonic CODER
Modular, Multi-Format and Multi-Protocol Transcoder, Packager, and Origin Server Software.

NVIDIA Jetson TX2 System-on-Module
High-performance Real-time Video Processing, Encoding and Transcoding using up to 8 TX2 modules for up to 48 FullHD/96 SD streams

Flussonic CODER Accelerated Hardware Platform

Flussonic CODER uses up to 8x NVIDIA Jetson SOMs (System-On-Module) and modular network interface cards to fully offload video processing tasks across dedicated CUDA and ARM A57 cores. This appliance can be configured for 4/8/16 1000 Base-T NIC's offering transcoding for up to 48 simultaneous Full HD or 96 Standard Definition streams.

Carrier-Grade Real-Time Video Streaming Platform

To provide maximum compatibility, the NCA-5510 is built on Intel® X86 platform that is interoperable with a wide-variety of open source and third-party video encoding / transcoding software. Built for reliability, performance and flexibility, the NCA-5510 can be easily customized to meet the needs of modern video solution providers and carriers. Dual hot-swappable power supplies, IPMI and Ethernet Bypass enable scalable remote management and deployment.

Flussonic CODER

Flussonic Coder is a building block of the Flussonic Cluster required for processing, transmitting, and further video recording. Coder supports a video stream with plenty of formats, codecs, and protocols in any point of the Flussonic Cluster.

The ingested video streams exist in the Flussonic Cluster as a sequence of elementary frames. Upon entering, the video is being de-multiplexed into atoms and on egress, the video is being multiplexed and packaged back for delivering in every modern video streaming protocol.

Benefits

The flexibility and power of Flussonic turnkey video streaming appliance creates end-to-end solutions for live streaming, IPTV, video surveillance, cloud video, and more.

The ability to deal with a multitude of video formats, codecs, and protocols and then process, package, and deliver to any modern streaming protocol gives Flussonic an ultimate flexibility as a video streaming solution.

Using Lanners modular hardware to enable high-density channel counts with redundant fail-safe features make this a true carrier-grade video-streaming solution.

NVIDIA Accelerated Video Streaming

For this project, Lanner's hardware appliance was integrated with 8x NVIDIA TX2 SOM each configured with 2x NVIDIA Denver 2 , 4x ARM® Cortex®-A57 and 256 CUDA cores with 8GB of LPDDR4 and 32GB eMMC. Each module allows complete offloading of real-time video streaming, transcoding and encoding for 6 FHD/12 SD streams for a total of 48 Full HD/96 SD Multibitrate Video streams in a single 1U appliance.

Taking advantage of hardware acceleration is key, using compatible software such as Flussonic's CODER/ NVIDIA OpenMax acceleration modules, is critical for demanding high-performance tasks like Real-time video transcoding, leaving the CPU free for other tasks such as streaming and content management. Many open source / third-party software solutions provide interoperability with NVIDIA Jetson and Xavier SOMs.

Lanner

About Lanner

Founded in 1986, Lanner is an ISO 9001 accredited organization with headquarters in Taipei, Taiwan, and offices in USA, Canada, and China. With over 30 years of experience in system and board hardware engineering, Lanner provides high-performance, reliable, and cost-effective computing platforms. Lanner is most renowned for its range of Intel architecture-based and RISC network appliances.

Lanner Electronics Inc. (TAIEX 6245) provides design, engineering, and manufacturing services for advanced network appliances and rugged applied computing platforms for system integrators, service providers, and application developers.

More information available at www.lanner-america.com.