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H264 Encoding Available on Etere ETX

Etere 26.1 launches Etere ETX with H264 encoding, the most commonly used codec that is able to produce good video quality at a significantly lower bit rate.

Etere software upgrade
VER 26.1

ETX

Etere ETX is the next generation of 4K IT based solution, cost-efficient video management system to be launched on Etere 26.1. In addition to being a complete channel in a box with full IP in and out capabilities, Etere ETX comes with H264 capabilities!

What is H264 and H264 Encoding
H264 encoding is one of the most commonly used formats for the recording, compression, and distribution of video content. It is known to be able to produce good video quality at substantially lower number of bits that are processed per unit of time compared to previous standards.

Popular Uses of H264 Encoding
- One of the video encoding standards for Blu-ray Discs
- Streaming internet sources, such as videos from Vimeo, YouTube, iTunes Store
- HDTV broadcasts over terrestrial (Advanced Television Systems Committee standards)
- Web software such as Microsoft Silverlight
- ISDB-T
- DVB-T
- DVB-T2
- Cable (DVB-C)
- Satellite (DVB-S and DVB-S2)

Flexibility of Multiple File Formats
H264 can be integrated into multiple types of file formats that contain various types of compressed data. It is frequently produced in MPEG-4, which uses the .MP4 extension, as well as QuickTime (.MOV), 3GP for mobile phones (.3GP), and the MPEG transport stream (.ts). H264 video is also commonly encoded with audio compressed with the AAC (Advanced Audio Coding) codec, which is an ISO/IEC standard (MPEG4 Part 3).

Multiple H264 Encoder Options Available:

Nvidia NVENC H264 encoder
Nvidia NVENC was introduced with the Kepler-based GeForce 600 series as a product feature that offloads H264 video encoding from the host CPU.

The NVIDIA Encoder (NVENC) provides high-quality video encoding that is faster and more power efficient compared to CUDA-based or CPU-based encoders. When using dedicated hardware for video encode and decode, the CUDA cores and system CPU are free to run other compute-intensive tasks.

Using NVENC
NVENC support is available in ETX free of charge.

According to NVENC specs GeForce cards are limited by 2 streams and Quadro are limited by 6 streams.

*According to NVIDIA's hardware limitations you can run only 2 NVENC encoding streams at the same time with GeForce cards, and up to 6 with QUADRO (higher than K4000).

Performance
NVIDIA's latest generation of Graphics Processing Units (GPUs) based on the Kepler and Maxwell architecture; contain a hardware-based H264 video encoder. It is commonly referred to as NVENC.

NVENC, being dedicated H264 hardware on the GPU chip, does not use the GPU's graphics engine and hence uses much less overall system power compared to the older CUDA-based encoder.

It also leaves the CPU and GPU graphics engine to perform other tasks. The hardware is optimized to provide excellent quality at high performance, enabling a wide range of applications that require video encoding capabilities.

Nvidia CUDA Encoder
Nvidia CUDA encoder works with Nvidia cards that support CUDA and uses both the CPU and GPU during the encoding process.

Using Nvidia CUDA
Starting from the 340.52 drivers, CUDA encoding has been disabled. In order to use it, a previous version of Nvidia drivers is needed (for example 337.88).

Performance
It has a much higher GPU usage than NVENC and produces no dropped or skipped frames while encoding. However, NVENC produces high quality compared to Nvidia CUDA.

Intel Quick Sync
Intel Quick Sync has the advantage of speed and efficiency. Speed is prioritized over quality. Video content is typically compressed and encoded into a specific format when it is stored. When you want to use that content, it must first be decoded and then re-encoded in a new format resulting in a resource- and time-intensive process.

Intel Quick Sync Video uses the dedicated media processing capabilities of Intel® Graphics Technology to decode and encode at high speed capabilities.

Using Intel Quick Sync
Based on Intel Media SDK, there are two modes available, the software (CPU-based) and hardware-accelerated (GPU-powered).

Performance
GPU version provides significantly quality (using the hardware codec that is available on the Intel processors) and does not make any use of the CPU, thus freeing up the CPU's usage. This results in very fast speeds with no dropped or skipped frames during the encoding process. The GRU is the recommended version as it produces much better quality.

The Central Processing Unit (CPU) version uses a large portion of the overall system power resulting in huge number of breaks and buffer overflow while recording and the occurrences of corrupted files.

x264 Encoder (GPL)
x264 is a free software library and application for encoding video streams into the H264/MPEG-4 AVC compression format, and is released under the terms of the GNU GPL.

X264 encoder supports features necessary for many different applications, such as television broadcast, Blu-ray low-latency video applications, and web video.This format forms the core of many web video services, such as Youtube, Facebook, Vimeo, and Hulu. It is widely used by television broadcasters and ISPs.

Using x264
There are two presets available namely the "faster" preset and the "superfast preset". GPL license prohibits the use of this encoder in commercial applications

without a special license. x264 is available under a commercial license from x264 LLC and CoreCodec.

Performance
The “Faster” preset relies heavily on CPU usage resulting in huge numbers of breaks and buffer overflow while recording and the occurrence of corruption on file.

The “Superfast” preset runs on almost half the CPU usage as compared to the “Faster” preset resulting in no dropped or skipped frames while recoding.

About Etere

Etere was founded in 1987 and it remains the only company to offer an end-to-end workflow solution for any broadcast and media company. Etere's team of engineers represents a unique cross section of broadcast & IT experiences. Etere is the Italian word for Luminiferous aether, which explains the wave-based light that has the unique ability to penetrate empty spaces, something which is not a common property of waves. Similarly, Etere Pte Ltd represents the commitment to deliver and achieve exceptional excellence backed by its mark of quality, consistency and reliability. Etere has achieved great success as a worldwide leader with expansive distribution networks in Europe, Middle East, Asia Pacific and South America. The company has its headquarters in Singapore and a dedicated development centre in Italy.