

## EMPLOY DAVINCI DM6446 PLATFORM FOR H.264 VIDEO PROCESSING ANALYSIS AND CASE DISCUSSION

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**ABSTRACT.** *This study used a DaVinci DM6446 dual core platform for video signal processing and analysis. The H.264 encoding format was utilized for image coding and encoding to integrate developed algorithms into an embedded system. The H.264 coding and encoding format can be applied in many fields, including network video platforms, high-definition digital TV and video storage players (blue-ray player system and HD DVD), etc. For the surveillance industry with its high storage demands for video data, image compression techniques using C language programming have been long expected. This study found that the proposed processing method has excellent performance. The advantages of the DaVinci DM6446 dual-core processor, the divisional processing technique and the strong video signal computing capability of DSP can increase the efficiency of programs and systems to realize optimal images.*

**Keywords:** DaVinci, H.264, DSP, High-definition digital TV, Video signal processing

**1. Introduction.** With the rapid development of science and technology, video entertainment quality has been increasing. Presently, common video systems are PC-based. PCs have fast operating speeds, but are not portable. Other choices in video systems include VLSI and DSP. VLSI has the advantages of low cost and high execution speed, but its research and development is time-consuming [1]. An embedded system features lower cost and higher portability, and requires a shorter time for research and development. Its speed is within an accepted range and the architecture can be updated rapidly. As technologies for intelligent systems become more sophisticated, new technologies have been developed to address problems with traditional image signal processing, such as time-consuming computations, complex algorithms and high demands for manpower. The application of an embedded system and H.264 encoding/decoding in image signal processing could improve image quality and save encoding time [2].

H.264 is a highly compressed video encoding/decoding format, which belongs to the same system as MJPEG and MPEG-2, and is regarded as advanced version of MPEG-4. It uses an ultra-low data transmission rate and can provide better image quality. The 3rd Generation Partnership Project (3GPP) uses H.264 as a new video transmission standard. The advantages of H.264 are reducing information storage space and occupied bandwidth. For the same image resolution, the image data size of the H.264 format is only half the size of an MPEG-4 image and 1/9th of the MJPEG image size. This indicates that an H.264 DVR can store more images and the network cameras applying H.264 can reduce occupied bandwidth when transmitting image data to a Hybrid DVR or NVR, in order to avoid network congestion and provide better image quality.