



### QUADDRIX DVRs VIDEO COMPRESSION STANDARD

#### ◦ Introducción

Video compression is a process performed by digital video recorders to store/transmit the video streams using less space without losing resolution or quality of the original analog video signal; this is especially useful for networking environments, where the bandwidth consumed by the video streams traveling over the network is a key factor for the optimization of the network resources.

The video compression is achieved by analyzing the analog video stream, and discarding the information that is indiscernible to the viewer. Each event is then assigned to a code represented on group of bits, commonly occurring events are assigned few bits codes, and rare events will have codes with more bits.

Today, there are many choices for video compression that yields different performances in terms of compression factor, quality, bit rate and cost.

#### ◦ Quaddrix DVRs Video Compression Standard

The compression standard is one of the key features when selecting a Digital Video Recorder, it will define the performance of the DVR in terms of the quality of the stored video, size of the digital video files, and the bandwidth consumption of the transmitted video streams.

The video compression standard used by Quaddrix DVRs is the H.264 Compression Standard, also known as MPEG-4 Part 10 or MPEG-4 AVC (Advanced video Coding) which is the newest video coding standard of the ITU-T Video Coding Experts Group and the ISO/IEC Moving Picture Experts Group (MPEG).

This new compression scheme has been developed in response to technical factors and the needs of an evolving market:

- MPEG-2 and other older video codecs are relatively inefficient.
- Much greater computational resources are available today.
- High Definition video is becoming pervasive, and there is a strong need to store and transmit more efficiently the higher quantity of data of HD (about 6 times more than Standard Definition video).

### WHY H.264

- Higher video quality at a given bit-rate: reduction in artifacts such as blockiness, color bands etc.

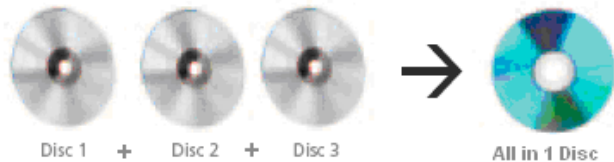




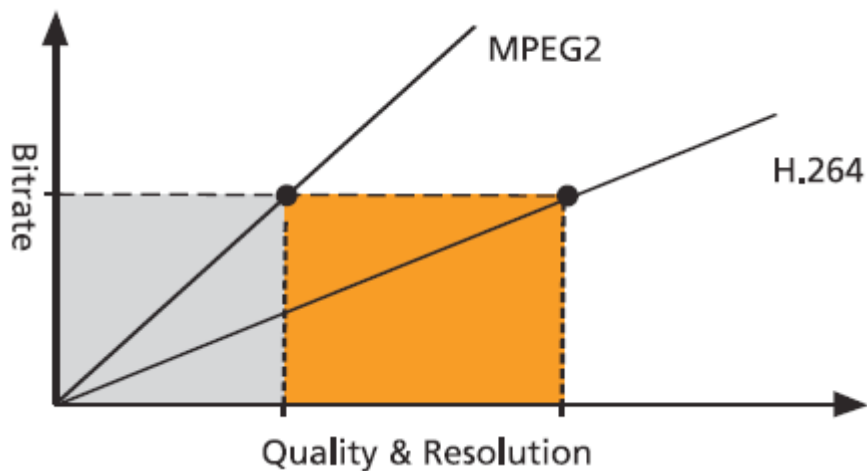
- Higher resolution: as the video world transitions to High Definition, a mechanism is needed to deliver it.





- Lower storage requirements: lower storage requirements will allow for large amounts of content to be delivered on a single disc.



- More compression and Quality than other video standards



- H.264 is able to achieve a 2:1 improvement over MPEG-2 on full-quality SDTV and HDTV, and it is expected to come into wide use in satellite and cable TV over the next decade.

when you think  Quality think  Quaddrix™



### PRACTICAL APPLICATION EXAMPLE

For your reference, at follows we will show a practical example of a common CCTV application, using 4, 8 and 16 video channels, using 15 frames per second per video channel, recording 8 hours per day, for a whole month (30 days). This practical example will show the results when using H.264, MJPEG and MPEG-4 compression standards.

1. (4) Video channels, (15) fps per channel, (8) hours per day, (30) days

MJPEG:

MPEG-4:

H.264:

2. (8) Video channels, (15) fps per channel, (8) hours per day, (30) days

MJPEG:

MPEG-4:

H.264:

3. (16) Video channels, (15) fps per channel, (8) hours per day, (30) days

MJPEG:

MPEG-4:

H.264:

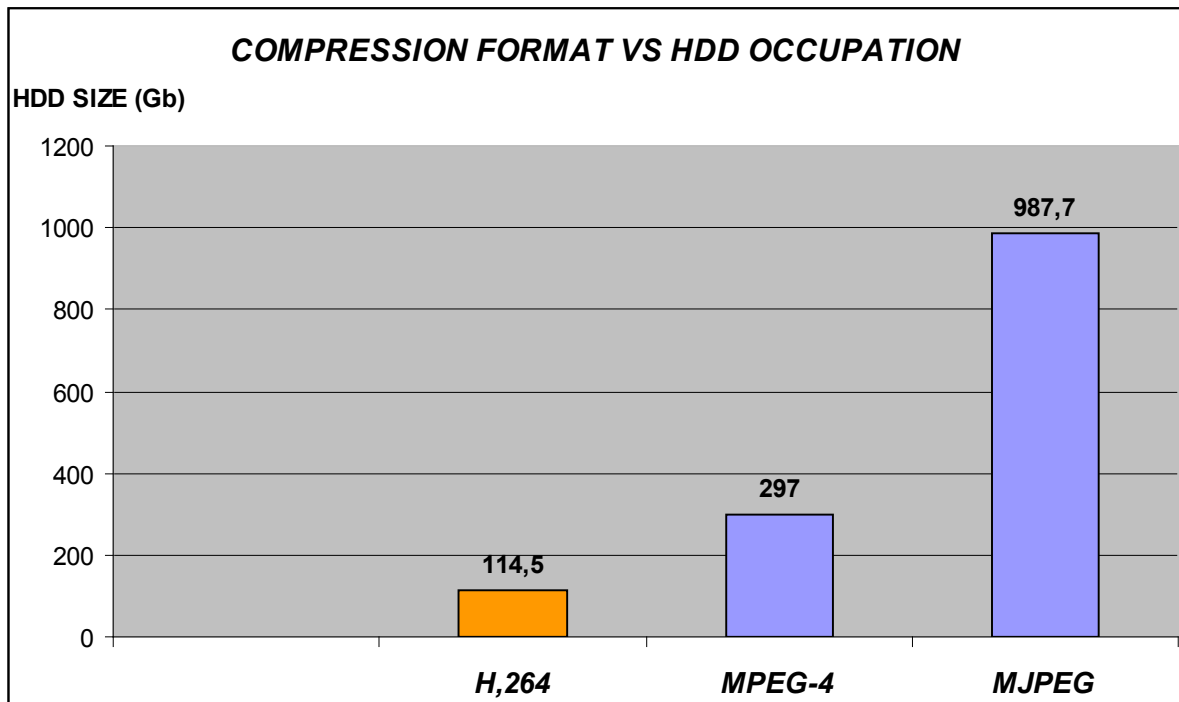
The required disk space is:

VIDEO COMPRESSION ALGORITHM	RESOLUTION	FPS	VIDEO CHANNELS	HOURS PER DAY	NUMBER OF DAYS	HDD SPACE REQUIRED (APPROX)
MJPEG	CIF	15	4	8	30	494Gb
			8			987.7Gb
			16			1975.4Gb
MPEG4	CIF	15	4	8	30	148.2Gb
			8			297Gb
			16			593.4Gb
H.264	CIF	15	4	8	30	57.2Gb
			8			114.5Gb
			16			229Gb

\* The difference between these 3 video compression algorithms in hard drive occupation matter is remarkable.



- This graphic show clearly the difference in compression rate provided by these video compression algorithms, the compression algorithm used by Quaddrix Tech. DVR's (H264) provides way more storage capacity than all the other compression algorithms.



(8) Video channels, (15) fps per channel, (8) hours per day, (30) days

- The H264 compression performance allows the costumer to storage more video data in one single HDD than MPEG-4 and MJPEG that traduces directly in the Hard Drive storage capacity therefore in costumer investment.