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Research on speed-up with hardware of audio fingerprint system

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1 Introduction

Recently, the network has been sped up. digital contents being offered online as digital data has increased. The digital copy is delivered to the network.It is a crime that disregards the copyright. High-speed system of realtime processing and not mistake system.it is very use ful.

2 About audio finger print

Identification that uses fingerprint ID can be done. identification method used Amount of feature. if audio file encording Identification is possible. ID is generated from the audio file and it compares it with ID. It doesn't care even if it doesn't process it to the audio file. There are some extraction techniques of the Amount of feature. The compression sound source should be able to be identified. Thing that identification with high accuracy can be done. ID is 1kB and identification speed. Identification system by fingerprint ID.

3   Proposed Algorithm

The feature of the proposal algorithm was to have used the wavelet transform. Fourier transform can know the energy of the frequency. Wavelet transform can know the energy of frequency and time'. The wavelet transform was able to be replaced with the Fourier transform. The next steps took the difference only of the frame from the thing replaced with the wavelet transform. The validity of the proposal algorithm was confirmed by the experiment and the result.

4   Evalution

An original file is PCM. MP3 encode and WMA encode and Resampling processing. ISONAGA's implementation software. Processing time is 3.353s by Opteron2GHz. proposed algorithm prosessing time is 128ms by Pentium4-2.8GHz. Therefore, accuracy is high and processing speed is high.

5   Summary and view in the future

proposed algorith implementation with software. The software program is executed. Pentium4-2.8GHz processing time became 128ms by software. ISONAGA implementation with hardware Processing time is 315ms. proposed software Processing time is 128ms. proposed software is 2.46 times as fast as ISONAGA's hardware. It is possible to use it for the introduction and phrase. software's haar-wavelet Processing time is 61ms. if used target device is Vertex4-LX160 used slice num 65 percent and Processing time is 54ms in 512 Parallel. used slice num 92 percent and Processing time is 32ms in 1024 Parallel. future work is pipeline technique is examined.