DECODING OF MULTIPLE DVD VIDEO SIGNALS IN A SINGLE PC

BZ02-06

Supervisor: Dr. ZENG Bing

Members:
TSE Wing Lun (05691438)
SUNG Yuk Leung (05687982)
Project Overview

Background

Long time ago, Hong Kong citizens love to see the Chinese drama. Nowadays they will also love to see films in the cinemas. We can see that Hong Kong citizens have a cultural of movies. After financial meltdown, they have no enough time to appreciate their lovely movies in the cinemas. Nowadays, most of the internet service providers provide a platform to customers, which let the customers appreciate their lovely movies at home. Our supervisor found that the quality of the movies can be better and also not be demanded which mean you can't choose what movie you would like to see. But the movie scheduled by Internet Services Providers. Because the movie can't play smoothly and the quality of the movie is lower than the original one after passing through the network. According to that reasons, my supervisor finds us to develop a higher quality video server.

Aim and Features

Principal aims:
- Understanding the MPEG2 decoding principal
- Controlling the MPEG2 output cards
- Transmitting MPEG2 sources to desired MPEG2 output cards
- Getting the scroll bar information to do the fast-track and playback
- Determining the computer resources allocation
- Playing the sources from internet

System Block Diagram
How To Work

New Approach: We used a new idea to do our project. We use a new video card to decode and output video signal to television. And MPEG2 file would be decoded by video card.

How to Work

New Approach advantages and disadvantages

Advantages:
- Video Sounds are provided. (Video cards can separate different video sounds)
- Not required a powerful computer. (Simple 1GHz computer already can support 3 cards)
- Connection to TV depends on how many PCI slots on the motherboard.
- We can embed programs to control the video card.
- Lower cost

Disadvantages:
- The card is not available in Hong Kong, needed to be purchased from China.
- Video card provided composite wire or S-video connection only to TV

User Interface

Basic Structure of Video Card
Result

We did a lot of research to find out that hardware decoding is much better than software decoding in terms of performance and quality. By using multiple decode card together, we are able to simulate building environment. The video decode card provided a programming environment to let us enhance the video card features. Finally, we succeed in sending movies to television, improving the quality of movies and developing a program to play, fast-forward, backtrack and stop the movie.

Conclusion

Based on series of tests, we can roughly and ideally calculate how many video cards can be inserted based on the CPU usage observation. I will show a simple calculation to determine the maximum number of video cards that can be inserted to the computer below. It will be a reference for our further development.

<table>
<thead>
<tr>
<th>Same Source: ( 9 \times (1 + 0.3) \times 100 )</th>
<th>Different sources: ( 4.5 \times (1 + 0.3) \times 100 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of video cards ( (n) = 9 )</td>
<td>Number of video cards ( (n) = 11 )</td>
</tr>
</tbody>
</table>

Maximum numbers of video cards