MAPPING A MJPEG DECODER ON OPENTLM SYSTEMC NOC PLATFORM

Van Tuan Nguyen

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Abstract:

The explosion of high-tech equipment is bringing modern science and technology into all life aspects with the applications variety. Especially, film record, photo taken functions are so easy to be found in mobile devices, security camcorder, online conversation device…

Recently, a lot of videos coding have released with high compression and image quality satisfy. But, it's difficult to implementation some new videos coding in camcorders which have hardware platform's less than PC. Wherefore, the choosing of suitable coding for device always is hard problem.

According the above judgment, MJPEG coding, an old coding, it is still used widely in hand camcorder, security camcorder… MJPEG has low computation complexity and high quality.

Nowadays, the explosion of semi-conductor technology, more and more process blocks are integrated in a IP (Intellectual Property), to use in a lot of difference applications. The number of IPs is integrated in an IP are large, it brings to increase communication consumption. The traditional communication method such as: point-point, bus… which don't respond to communication consumption between IPs. The term "Network on Chip" (NoC) was suggested, which is new solution to solve this hard problem. In the world, many groups lead in researching and application NoC such as: Berkeley University, Manchester University, Silistix Inc, Massachussetts University, Standford University, Princetion University, Intel Crp, IMEC research center (Belgium), CEA-LETI (MINATEC) research center….

This bachelor's thesis implement a multimedia application that is MJPEG decoder on NoC OpenTLM platform. At first, a single block MJPEG decoder is designed. This architecture is use to verification and estimation the MJPEG decoder on NoC OpenTLM platform. The results in design process are base to confirm application ability NoC model in digital system design.

The content of thesis includes five chapters. **Chapter 1** presents principle base about JPEG and MJPEG coding. **Chapter 2** introduces detail NoC OpenTLM platform. **Chapter 3** presents design process and implementation single block MJPEG decoder. **Chapter 4** is contribution of NoC and mapping MJPEG decoder on this platform. The end, **Chapter 5** presents estimation results and mention some development ways in the furture.

Keywords: *MJPEG, NoC, OpenTLM.*