ABSTRACT

Along with the rapid development of computer technology in the field of hardware and software, causing the user's computer habits that tend to replace their old computer hardware with a new one. This can lead to waste, because computer users are not necessarily require the full capabilities of new technologies. The solution is to use Infrastructure as a Service (IaaS) Cloud Computing. IaaS Cloud Computing is a technology that provides computing services via a local area network (LAN) or internet. With this technology, computer users can access the high computing capabilities without having to replace his old hardware. Software used in this thesis is the Eucalyptus.

The methodology used in this thesis is to experiment and literature study, which will use multiple PCs as an object of experimentation, and by examining references from various sources. The parameters examined in this thesis are flops (floating point per second), memory bandwidth, and video encoding time.

The Intel Xeon cloud computing scenarios had obtained the following results, the Flops parameters: 2.689039 GFlops - 17.50349 GFlops, memory bandwidth: 27.25 - 28.28 Gb/s, video encoding time: 32.76667 seconds - 220.2 seconds. For AMD Phenom cloud computing scenarios, the Flops parameters: 3.7228267 GFlops - 11.40322 GFlops, memory bandwidth: 32.31 - 32.79 Gb/s, video encoding time: 76.1333 seconds - 305.8 seconds. For Intel Xeon real computer scenario, the flops parameters: 18.2543 GFlops, memory bandwidth: 27.56 Gb/s, video encoding time: 29.1333 seconds. For AMD Phenom real computer scenario, the flops parameters: 12.2543 GFlops, memory bandwidth: 32.27 Gb/s, video encoding time: 70.3333 seconds. On the floating points per seconds and video encoding time parameter, the performance increase as the number of cores, while the memory bandwidth performance is stable despite the number of cores tended to be changed.

Key Word: *Cloud Computing, IaaS, Eucalyptus, Flops, Memory Bandwidth, Video Encoding*