# An research of parallel processing architecture
# in which disks are not shared

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Parallel processing technique by multi-processor method in which each processor executes each thread respectively have been widely spread. Usually the configuration in which plural processors share a main memory and disks which is called "shared everything architecture" is used for this purpose. But for parallel processing technique in which all the processors execute only one thread cooperatively, researches are still in progress and furthermore it is restricted in application specified problem such as database or video stream distribution. For this purpose "shared nothing architecture" in which each processor dose not share a main memory nor disks is usually used. This research treats the later type parallel processing, presents improved method, makes prototype system, and evaluates it.

This paper consists of 5 chapters.

In the 1st chapter, backgrounds and purposes of the research are expressed, and some survey of other researches are made.

In the 2nd chapter, an experiment is made to investigate video stream transfer characteristics on Ethernet LAN. Considering the result, the new method called "Distributed RAID" video server is proposed. A prototype system is made. Good results are obtained that performance improvement linear to the number of servers is realized, and quantity of picture are very good.

In the 3rd chapter, improvements are made seeking not only performance but also reliability. The method of "Distributed RAID4" video server is proposed and a prototype system is made. Fine results are got such as, when one of the servers is dropped artificially, but the prototype system continues to work and no influences is observed in clients picture in the duration.

In the 4th chapter an database machine which consists of plural processors connected altogether by a fast internal bus and a common memory is proposed. An prototype system is made. In the result, very good performance is realized, such as 40 times faster than other systems.

In the 5th chapter, a summery and results of this reserch are stated.