

# **Abstract**

## **A Hypercube Parallel Computer Based on the DSP32 Microprocessor**

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The continued development of parallel computers is driven by the need for very fast, yet inexpensive, computing power. This thesis proposes a new parallel computer based on the DSP32 microprocessor. Feasibility of the machine's design was tested by constructing a small prototype containing four microprocessors. The time to solve two typical problems using 1, 2, and 4 processors of the prototype was then measured. The results showed that the execution time for one of the problems decreased significantly as more processors were used. In contrast, the execution time for the other problem actually increased when 2 and 4 processors were used. The results indicated that larger machines of the same design should operate correctly. However, the performance of such machines will vary for different problems.