

DESIGN AND ANALYSIS OF MODIFIED FIN STRUCTURE FOR COMPUTER PROCESSOR HEAT SINK.

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The increasing demand for high-performance computing has led to the generation of significant heat within computer processors, necessitating efficient thermal management solutions. Heat sinks, commonly used to dissipate heat from processors, play a vital role in maintaining optimal operational temperatures. This project, titled Modeling and Analysis of Modified Fin Structure in Computer Processor Heat Sink explores the enhancement of heat sink designs through the modification of fin structures to improve thermal performance. The primary objective is to model and analyze various fin configurations using computational techniques such as Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA). These modifications aim to optimize heat dissipation, reduce thermal resistance, and enhance the overall efficiency of the cooling system. The project will assess different geometries, materials, and arrangements of the fins, focusing on improving surface area contact with the surrounding airflow while minimizing pressure drop. The performance of each fin structure will be evaluated based on parameters such as temperature distribution, heat transfer rate, and cooling efficiency. Comparative analysis of traditional and modified fin structures will provide insights into the effectiveness of the design changes. This study contributes to the ongoing research in thermal management solutions for electronic devices, with potential applications in high-performance computing and other temperature-sensitive technologies. The results of this project are expected to guide the development of more efficient heat sinks, thereby enhancing the performance and reliability of modern processors.