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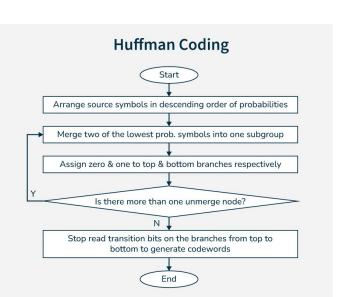
First Year ARCS Scholar



Evaluating Huffman Coding as an Optimal Method for Lossless File Compression in Semiconductor Systems

File compression is essential in semiconductor systems to reduce data size while maintaining data integrity. This research explores the question: Is Huffman compression really the best method for achieving lossless compression in hardware? A hardware-based file compressor was designed using digital logic principles found in semiconductor production, including circuit synthesis, layout optimization, and efficient data-path implementation. The study highlights how Huffman coding can be integrated into semiconductor architectures to enhance storage efficiency and processing performance in modern electronic systems.

Huffman File Compression



Created using Huffman Compression

Huffman compression is a lossless data compression algorithm that minimizes the average number of bits per symbol, reducing overall file size without losing any information.

Lossless Compression

Lossless compression is a method of reducing the size of data without losing any information.

When you decompress the data, you get exactly the original file back.

