A tight lower bound for optimal bin packing. (English) Zbl 0855.90102

Summary: We present an $O(n \log n)$ algorithm to compute a tight lower bound for the one-dimensional bin packing problem. We have simulated the algorithm on randomly generated bin packing problems with item sizes drawn uniformly from $(a, b]$, where $0 \leq a < b \leq B$ and $B$ is bin size. Using our lower bound, the average error of BFD is less than 2%. For $a + b \geq B$, the error is less than 0.003%.

MSC:
90C27 Combinatorial optimization

Keywords:
best fit decreasing; harmonic partition; matching; tight lower bound; one-dimensional bin packing

Full Text: DOI

References:
[7] Lueker, G.S., Bin packing with items uniformly distributed over interval $[a,b]$, (), 289-297

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