Optimization of Signed Power-of-Two Coefficient FIR Filters on Loosely Connected Parallel Machines

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Abstract

Several branch and bound mixed integer linear programming based algorithms for the design of FIR filters whose coefficient values are represented by sums of limited number of signed power-of-two terms using a cluster of workstations as the computation platform were investigated. The master-slave model is adopted for the control of the machines. Test run results showed that super linear speedup (i.e. the speedup factor is more than the number of machines running in parallel) may be achieved.