

TABLE I
AREA AND WIRE LENGTH COMPARISON ON MCNC BENCHMARK WITH VARIOUS ALGORITHMS. BETTER RESULTS ARE EMPHASIZED IN BOLD.

| Performance measures | apte | | xerox | | hp | | ami33 | | ami49 | |
|-----------------------|------------------------|------------|------------------------|--------------|------------------------|-------------|------------------------|-------------|------------------------|------------|
| | Area(mm ²) | WL(mm) | Area(mm ²) | WL(mm) | Area(mm ²) | WL(mm) | Area(mm ²) | WL(mm) | Area(mm ²) | WL(mm) |
| <i>MCNC benchmark</i> | | | | | | | | | | |
| RL(ICCD2020) | 47.08 | 403 | 20.42 | 633 | 9.21 | 195 | 1.24 | 69 | 38.65 | 1724 |
| BCSA | 48.05 | 474.62 | 20.42 | 385.21 | 9.25 | 157.07 | 1.23 | 53.55 | 38.1 | 705.20 |
| ISSAA | 48.47 | 408.47 | 20.42 | 387.64 | 9.40 | 153.05 | 1.26 | 49.28 | 37.76 | 824.49 |
| VOAS | 47.05 | 246 | 20.45 | 379.6 | 9.46 | 149.8 | 1.22 | 59.5 | 37.82 | 667 |
| Fast-SA | 50.3 | 541.43 | 20.41 | 421.15 | 9.6 | 214.35 | 1.29 | 59.96 | 40.36 | 816.51 |
| DPSO | 47.31 | 263 | 20.2 | 477 | 9.5 | 136 | 1.28 | 69 | 38.8 | 880 |
| ESA | 49.38 | 205.54 | 20.54 | 621.05 | 9.36 | 510.24 | 1.25 | 108.5 | 36.73 | 1371 |
| Genetic Algorithm | 46.9 | 191 | 20.2 | 500 | 9.85 | 68.3 | 1.29 | 46.2 | 39.5 | 912 |
| O-tree | 51.9 | 321 | 20.4 | 381 | 9.5 | 153 | 1.28 | 51 | 39.6 | 689 |
| Enhanced O-tree | 52.0 | 321 | 20.4 | 381 | 9.4 | 152 | 1.30 | 52 | 39.9 | 703 |
| TCG | 48.5 | 378 | 20.4 | 385 | 9.5 | 152 | 1.24 | 50 | 38.2 | 663 |
| CS | 48.5 | 380 | 20.4 | 381 | 9.6 | 149 | 1.25 | 48.1 | 38.2 | 690 |
| Avg. | 48.8 | 344.4 | 20.4 | 444.4 | 9.47 | 182.5 | 1.26 | 59.67 | 38.6 | 887.1 |
| Ours. | 47.08 | 241.22 | 20.12 | 525.74 | 9.34 | 108.63 | 1.20 | 49.77 | 37.44 | 823.88 |

WL wire length

Shunmugathammal, M., Christopher Columbus, C. & Anand, S. A Novel B*tree Crossover-Based Simulated Annealing Algorithm for Combinatorial Optimization in VLSI Fixed-Outline Floorplans. Circuits Syst Signal Process 39, 900–918 (2020). <https://doi.org/10.1007/s00034-019-01054-9>

TABLE II
AREA AND WIRE LENGTH COMPARISON ON GCRS BENCHMARK WITH VARIOUS ALGORITHMS. BETTER RESULTS ARE EMPHASIZED IN BOLD.

| Performance measures | n100 | | | n200 | | | n300 | | |
|-----------------------|-----------------------|---------------------|--------------|-----------------------|---------------------|--------------|-----------------------|---------------------|--------------|
| | Area($\times 10^5$) | WL($\times 10^5$) | RT(s) | Area($\times 10^5$) | WL($\times 10^5$) | RT(s) | Area($\times 10^5$) | WL($\times 10^5$) | RT(s) |
| <i>GSRC benchmark</i> | | | | | | | | | |
| RL | 1.95 | 1.55 | 389.4 | 2.15 | 3.48 | 784.9 | 3.40 | 5.25 | 3766.9 |
| SA | 1.97 | 1.54 | 396.2 | 2.01 | 3.34 | 1101.9 | 3.29 | 5.44 | 2062.3 |
| Ours. | 1.90 | 1.35 | 2935.3 | 1.86 | 3.07 | 2914.6 | 2.88 | 4.89 | 503.6 |

WL wire length, RT run time

Z. He et al., "Learn to Floorplan through Acquisition of Effective Local Search Heuristics," 2020 IEEE 38th International Conference on Computer Design (ICCD), 2020, pp. 324-331, doi: 10.1109/ICCD50377.2020.00061.