Monolithic Results

| Instance Name | A*(GNN) | | | | BFS | | P5 | | | |
|----------------------|---------|-------|----------|---------|-------|----------|---------|-------|----------|---------|
| | Length. | Nodes | Time[ms] | Length. | Nodes | Time[ms] | Length. | Nodes | Time[ms] | search |
| Assemble_B10-pl_5 | _ | _ | ТО | _ | _ | ТО | _ | _ | ТО | - |
| $Assemble_B2-pl_5$ | 5 | 14 | 264 | 5 | 14 | 264 | 5 | 14 | 285 | A*(GNN) |
| $Assemble_B3-pl_5$ | 5 | 14 | 164 | 5 | 14 | 154 | 5 | 14 | 308 | A*(GNN) |
| $Assemble_B4-pl_5$ | 5 | 14 | 275 | 5 | 14 | 332 | 5 | 14 | 330 | A*(GNN) |
| $Assemble_B5-pl_5$ | 5 | 14 | 223 | 5 | 14 | 371 | 5 | 14 | 475 | A*(GNN) |
| $Assemble_B6-pl_5$ | 5 | 14 | 804 | 5 | 14 | 826 | 5 | 14 | 1127 | A*(GNN) |
| $Assemble_B7-pl_5$ | 5 | 14 | 4368 | 5 | 14 | 4790 | 5 | 14 | 9894 | A*(GNN) |
| $Assemble_B8-pl_5$ | 5 | 14 | 24655 | 5 | 14 | 25636 | 5 | 14 | 48340 | A*(GNN) |
| $Assemble_B9-pl_5$ | 5 | 14 | 295842 | 5 | 14 | 296625 | _ | _ | TO | - |
| $Assemble_C-pl_5$ | 5 | 14 | 124 | 5 | 14 | 237 | 5 | 14 | 238 | A*(GNN) |
| $CC_2_2_3-pl_3$ | 3 | 9 | 111 | 4 | 11 | 108 | 3 | 9 | 181 | A*(GNN) |
| $CC_2_2_3-pl_4$ | 4 | 13 | 183 | 5 | 9 | 141 | 4 | 14 | 171 | A*(GNN) |
| $CC_2_2_3-pl_5$ | 5 | 17 | 272 | 5 | 9 | 134 | 5 | 77 | 684 | A*(GNN) |
| CC_2_2_3-pl_6 | 6 | 62 | 424 | 6 | 10 | 106 | 6 | 178 | 1532 | A*(GNN) |
| $CC_2_2_3-pl_7$ | 7 | 163 | 2390 | 8 | 33837 | 214811 | 7 | 558 | 4358 | A*(GNN) |
| $CC_2_2_3-pl_8$ | 8 | 1327 | 18235 | 8 | 247 | 2434 | 8 | 2539 | 27312 | A*(GNN) |
| $CC_2_2_4-pl_3$ | 3 | 3 | 217 | 3 | 3 | 279 | 3 | 11 | 373 | A*(GNN) |
| $CC_2_2_4-pl_4$ | 6 | 7 | 324 | 6 | 9 | 212 | 4 | 23 | 778 | A*(GNN) |
| $CC_2_2_4-pl_5$ | 7 | 43 | 938 | 9 | 77 | 2507 | 5 | 94 | 3483 | A*(GNN) |
| CC_2_2_4-pl_6 | 6 | 21 | 1251 | 7 | 26 | 296 | 6 | 363 | 9536 | A*(GNN) |
| $CC_2_2_4-pl_7$ | 8 | 129 | 3989 | 8 | 498 | 4701 | 7 | 2084 | 45668 | A*(GNN) |
| $CC_2_3_4-pl_3$ | 5 | 6 | 2517 | 3 | 3 | 1381 | 3 | 19 | 6067 | A*(GNN) |
| $CC_2_3_4-pl_4$ | 5 | 5 | 1995 | 6 | 10 | 1655 | 4 | 42 | 12130 | A*(GNN) |
| $CC_2_3_4-pl_5$ | 10 | 132 | 20181 | 12 | 61 | 5848 | 5 | 127 | 45028 | A*(GNN) |
| $CC_2_3_4-pl_6$ | 11 | 1269 | 65775 | 8 | 11 | 3383 | 6 | 675 | 124726 | A*(GNN) |
| $CC_2_3_4-pl_7$ | 11 | 2054 | 88913 | 9 | 22 | 3244 | 7 | 4153 | 585278 | A*(GNN) |
| $CC_3_2_3-pl_3$ | 3 | 4 | 228 | 3 | 3 | 196 | 3 | 14 | 318 | A*(GNN) |
| $CC_3_2_3-pl_4$ | 5 | 13 | 219 | 5 | 7 | 160 | 4 | 47 | 689 | A*(GNN) |
| CC_3_2_3-pl_5 | 6 | 51 | 888 | 6 | 45 | 463 | 5 | 136 | 2088 | A*(GNN) |
| CC_3_2_3-pl_6 | 6 | 74 | 1201 | 6 | 113 | 1092 | 6 | 367 | 6443 | A*(GNN) |
| CC_3_2_3-pl_7 | 8 | 185 | 3058 | 7 | 1835 | 24464 | 7 | 1548 | 26110 | A*(GNN) |
| CC_3_3_3-pl_3 | 3 | 3 | 218 | 3 | 4 | 367 | 3 | 15 | 790 | A*(GNN) |
| $CC_3_3_3_pl_4$ | 6 | 19 | 1730 | 4 | 4 | 495 | 4 | 39 | 1337 | A*(GNN) |

| CC_3_3_3-pl_5 | 6 | 26 | 1975 | 7 | 22 | 534 | 5 | 253 | 8316 | A*(GNN) |
|----------------------------|----|-------|--------|----|-------|--------|----|-------|--------|---------|
| CC_3_3_3-pl_6 | 8 | 226 | 13395 | _ | _ | TO | 6 | 1942 | 73680 | A*(GNN) |
| CC_3_3_3-pl_7 | 8 | 1476 | 59481 | 8 | 79 | 1255 | 7 | 11726 | 405444 | A*(GNN) |
| Coin_in_the_Box-pl_2 | 2 | 2 | 52 | 2 | 2 | 50 | 2 | 2 | 109 | A*(GNN) |
| Coin_in_the_Box-pl_3 | 3 | 17 | 220 | 3 | 17 | 129 | 3 | 17 | 228 | A*(GNN) |
| Coin_in_the_Box-pl_5 | 5 | 77 | 425 | 5 | 77 | 552 | 5 | 78 | 728 | A*(GNN) |
| Coin_in_the_Box-pl_6 | 6 | 381 | 3534 | 6 | 381 | 2748 | 6 | 381 | 3760 | A*(GNN) |
| Coin_in_the_Box-pl_7 | 7 | 1817 | 10395 | 7 | 1817 | 13110 | 7 | 1793 | 17758 | A*(GNN) |
| SC_4_1-pl_3 | 3 | 4 | 51 | 3 | 4 | 52 | 3 | 4 | 96 | A*(GNN) |
| SC_4_1-pl_5 | 5 | 17 | 125 | 5 | 17 | 99 | 5 | 17 | 93 | A*(GNN) |
| $SC_4_2-pl_5$ | 5 | 15 | 132 | 5 | 15 | 99 | 5 | 30 | 184 | A*(GNN) |
| $SC_4_2-pl_7$ | 7 | 120 | 609 | 7 | 120 | 545 | 7 | 97 | 533 | A*(GNN) |
| $SC_4_2-pl_8$ | 8 | 339 | 1639 | 8 | 339 | 1316 | 8 | 184 | 923 | A*(GNN) |
| $SC_4_3-pl_5$ | 5 | 17 | 116 | 5 | 17 | 62 | 5 | 17 | 98 | A*(GNN) |
| SC_4_3-pl_6 | 6 | 21 | 162 | 6 | 21 | 113 | 6 | 21 | 93 | A*(GNN) |
| SC_4_3-pl_8 | 8 | 59 | 186 | 8 | 59 | 156 | 8 | 59 | 177 | A*(GNN) |
| SC_4_4-pl_5 | 5 | 17 | 125 | 5 | 17 | 87 | 5 | 17 | 91 | A*(GNN) |
| SC_8_10 -pl_6 | 6 | 49 | 315 | 6 | 49 | 343 | 6 | 113 | 882 | A*(GNN) |
| SC_8_{10} -pl_8 | 8 | 542 | 5157 | 8 | 542 | 3841 | 8 | 485 | 4121 | A*(GNN) |
| $SC_{-8_{-}10_{-}pl_{-}9}$ | 9 | 1660 | 17268 | 9 | 1660 | 14557 | 9 | 1772 | 16936 | A*(GNN) |
| $SC_8_{10}-pl_{12}$ | 12 | 31662 | 199243 | 12 | 31662 | 203157 | 12 | 35063 | 281914 | A*(GNN) |
| $SC_9_11-pl_4$ | 4 | 8 | 143 | 4 | 8 | 141 | 4 | 8 | 139 | A*(GNN) |
| $SC_9_11-pl_5$ | 5 | 11 | 152 | 5 | 11 | 96 | 5 | 11 | 122 | A*(GNN) |
| $SC_9_11-pl_6$ | 6 | 26 | 179 | 6 | 26 | 161 | 6 | 26 | 198 | A*(GNN) |
| SC_{-9}_{-11} -pl_7 | 7 | 41 | 431 | 7 | 41 | 299 | 7 | 41 | 326 | A*(GNN) |
| SC_9_11-pl_8 | 8 | 66 | 388 | 8 | 66 | 271 | 8 | 66 | 500 | A*(GNN) |
| $SC_9_11-pl_9$ | 9 | 238 | 1895 | 9 | 238 | 2158 | 9 | 237 | 2041 | A*(GNN) |
| $SC_9_11-pl_10$ | 10 | 663 | 6151 | 10 | 663 | 5467 | 10 | 657 | 6013 | A*(GNN) |
| $SC_9_11-pl_11$ | 11 | 1262 | 15073 | 11 | 1262 | 10960 | 11 | 1272 | 12372 | A*(GNN) |
| $SC_{-}10_{-}8-pl_{-}9$ | _ | _ | TO | _ | _ | TO | _ | _ | TO | - |
| $SC_{10}-8-pl_{10}$ | 10 | 10 | 174 | 10 | 10 | 97 | 10 | 10 | 108 | A*(GNN) |
| $SC_{10}-8-pl_{14}$ | 14 | 93 | 481 | 14 | 93 | 378 | 14 | 93 | 572 | A*(GNN) |
| $SC_{-}10_{-}8-pl_{-}15$ | 15 | 130 | 824 | 15 | 130 | 543 | 15 | 130 | 822 | A*(GNN) |
| $SC_{-}10_{-}10$ -pl_2 | 2 | 6 | 280 | 2 | 6 | 173 | 2 | 6 | 311 | A*(GNN) |
| $SC_10_10-pl_3$ | 3 | 10 | 239 | 3 | 10 | 248 | 3 | 10 | 347 | A*(GNN) |
| $SC_10_10-pl_6$ | 6 | 309 | 8676 | 6 | 309 | 5998 | 6 | 298 | 8135 | A*(GNN) |
| $SC_10_10-pl_7$ | 7 | 647 | 17999 | 7 | 647 | 11495 | 7 | 589 | 16064 | A*(GNN) |
| , | | | | | | | | | | |

| SC_{-10}_{-10} -pl_9 | | 9 | 10 | 188 | 9 | 10 | 120 | 9 | 10 | 117 | A*(GNN) |
|------------------------|-------|----------------|----------------|-------------------|----------------|-----------------|-------------------|---------------------|-----------------|--------------------|---------|
| SC_{-10}_{-10} -pl_9 | | 9 | 886 | 20614 | 9 | 886 | 17444 | 9 | 1248 | 32644 | A*(GNN) |
| SC_10_10-pl_10 |) | 10 | 15 | 191 | 10 | 15 | 158 | 10 | 15 | 161 | A*(GNN) |
| SC_10_10-pl_10 |) | 10 | 3096 | 80030 | 10 | 3096 | 58382 | 10 | 1977 | 51904 | A*(GNN) |
| SC_10_10-pl_13 | 3 | 13 | 15826 | 285398 | 13 | 15826 | 330014 | 13 | 17305 | 472785 | A*(GNN) |
| SC_10_10-pl_13 | 3 | 13 | 51 | 431 | 13 | 51 | 360 | 13 | 51 | 358 | A*(GNN) |
| SC_10_10-pl_14 | 4 | _ | _ | TO | 14 | 30967 | 582175 | _ | _ | TO | - |
| SC_10_10-pl_17 | 7 | 17 | 946 | 7240 | 17 | 946 | 5175 | 17 | 942 | 7546 | A*(GNN) |
| SC_10_10-pl_17 | 7 | _ | _ | TO | _ | _ | TO | _ | _ | TO | - |
| $avg \pm std$ | (all) | 7 ± 3 | 915 ± 4034 | 17383 ± 53089 | 7 ± 3 | 1723 ± 6489 | 24971 ± 88115 | 6 ± 3 | 1248 ± 4653 | 32376 ± 101790 | _ |
| $iqm \pm iqr$ | (all) | 6 ± 3 | 54 ± 218 | 1255 ± 5436 | 6 ± 4 | 44 ± 232 | 971 ± 4112 | 6 ± 3 | 87 ± 445 | 2415 ± 9514 | |
| $avg \pm std$ (c | comm) | 7 ± 3 | 937 ± 4087 | 13624 ± 42651 | 7 ± 3 | 1346 ± 5601 | 13617 ± 50834 | 7 ± 3 | 1238 ± 4684 | 31810 ± 102369 | |
| iqm± iqr (o | comm) | 6 ± 3 | 55 ± 224 | 1121 ± 4151 | 6 ± 3 | 45 ± 227 | 871 ± 3225 | 6 ± 3 | 87 ± 367 | 2358 ± 9251 | |
| Solved Instances | | 75/79 (94.94%) | | | 75/79 (94.94%) | | | $74/79 \ (93.67\%)$ | | | |

Table 1: Comparison of execution on the domain over the **Train** and **Test** instances.