

# Generalized Elias-Fano code for the compressed indexing of arbitrary integer sequences

## Supplementary Material: Detailed Experimental Results

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We present the tables below, which contain detailed numerical data from our experiments. These tables are slightly wider than the standard margins, but we preferred to increase the font size to enhance their readability.

**Table 1: Compression Ratio (%) Bold: Best, Underlined: Second, *Italics*: Third.**

| Dataset | General-purpose compressors |      |        |             |      | Special-purpose compressors |       |       |          |      |      |             |         |      |       | GEF variants |             |       |        |       |             |             |             |
|---------|-----------------------------|------|--------|-------------|------|-----------------------------|-------|-------|----------|------|------|-------------|---------|------|-------|--------------|-------------|-------|--------|-------|-------------|-------------|-------------|
|         | Broli                       | Lz4  | Snappy | Xz          | Zstd | ALP                         | Camel | Chimp | Chimp128 | DAC  | Elf  | Falcon      | Gorilla | LeCo | NeaTS | TSXor        | RLE-GEF     | U-GEF | U-GEF* | B-GEF | B-GEF*      | B*-GEF      | B*-GEF*     |
| IT      | 0.14                        | 0.41 | 0.37   | 0.13        | 0.23 | 0.17                        | 0.20  | 0.72  | 0.30     | 0.24 | 0.38 | <i>0.11</i> | 0.79    | 0.16 | 0.12  | 0.31         | 0.12        | 0.12  | 0.12   | 0.11  | 0.11        | <b>0.10</b> | <b>0.10</b> |
| US      | 0.09                        | 0.27 | 0.21   | 0.09        | 0.13 | 0.11                        | 0.20  | 0.55  | 0.19     | 0.25 | 0.27 | <i>0.07</i> | 0.57    | 0.10 | 0.08  | 0.19         | 0.08        | 0.09  | 0.08   | 0.07  | 0.08        | <b>0.06</b> | <b>0.06</b> |
| ECG     | 0.12                        | 0.34 | 0.26   | 0.12        | 0.17 | 0.16                        | 0.22  | 0.69  | 0.27     | 0.25 | 0.32 | <i>0.12</i> | 0.73    | 0.16 | 0.14  | 0.24         | 0.13        | 0.13  | 0.13   | 0.12  | 0.12        | <b>0.11</b> | <b>0.11</b> |
| WD      | 0.28                        | 0.53 | 0.54   | 0.24        | 0.34 | 0.25                        | 0.40  | 0.84  | 0.44     | 0.26 | 0.54 | 0.23        | 0.91    | 0.25 | 0.25  | 0.47         | <b>0.23</b> | 0.23  | 0.23   | 0.23  | <u>0.23</u> | 0.23        | 0.23        |
| AP      | <u>0.13</u>                 | 0.26 | 0.25   | <b>0.12</b> | 0.18 | 0.25                        | 0.44  | 0.36  | 0.30     | 0.41 | 0.37 | 0.16        | 0.38    | 0.24 | 0.20  | 0.35         | <i>0.14</i> | 0.19  | 0.16   | 0.18  | 0.16        | 0.17        | 0.17        |
| UK      | 0.09                        | 0.27 | 0.21   | 0.09        | 0.13 | 0.12                        | 0.15  | 0.47  | 0.23     | 0.26 | 0.36 | <i>0.08</i> | 0.54    | 0.11 | 0.09  | 0.16         | 0.09        | 0.11  | 0.10   | 0.09  | 0.09        | <b>0.07</b> | <b>0.07</b> |
| GE      | 0.11                        | 0.30 | 0.24   | 0.11        | 0.15 | 0.14                        | 0.23  | 0.67  | 0.21     | 0.29 | 0.36 | <i>0.11</i> | 0.71    | 0.14 | 0.12  | 0.21         | 0.12        | 0.14  | 0.13   | 0.12  | 0.12        | <b>0.10</b> | <b>0.10</b> |
| LON     | 0.19                        | 0.50 | 0.49   | <i>0.17</i> | 0.33 | 0.26                        | 0.37  | 0.62  | 0.55     | 0.47 | 0.64 | <b>0.15</b> | 0.63    | 0.25 | 0.18  | 0.66         | 0.19        | 0.19  | 0.18   | 0.19  | <u>0.17</u> | 0.19        | 0.19        |
| LAT     | 0.24                        | 0.52 | 0.51   | <i>0.21</i> | 0.41 | 0.25                        | 0.26  | 0.61  | 0.44     | 0.47 | 0.63 | <b>0.19</b> | 0.64    | 0.30 | 0.22  | 0.51         | 0.24        | 0.24  | 0.23   | 0.24  | <u>0.21</u> | 0.23        | 0.23        |
| DP      | 0.17                        | 0.49 | 0.48   | 0.16        | 0.29 | 0.21                        | 0.26  | 0.77  | 0.50     | 0.27 | 0.42 | <i>0.15</i> | 0.83    | 0.21 | 0.16  | 0.61         | 0.16        | 0.17  | 0.16   | 0.15  | 0.15        | <b>0.13</b> | <b>0.13</b> |
| CT      | 0.16                        | 0.43 | 0.38   | 0.16        | 0.25 | 0.15                        | 0.23  | 0.74  | 0.36     | 0.19 | 0.66 | 0.14        | 0.87    | 0.15 | 0.14  | 0.31         | <i>0.14</i> | 0.14  | 0.14   | 0.14  | 0.14        | <b>0.13</b> | <b>0.13</b> |
| DU      | <b>0.08</b>                 | 0.23 | 0.19   | <i>0.08</i> | 0.11 | 0.13                        | 0.18  | 0.40  | 0.22     | 0.12 | 0.21 | <u>0.08</u> | 0.44    | 0.13 | 0.09  | 0.18         | 0.09        | 0.10  | 0.09   | 0.10  | 0.09        | 0.10        | 0.10        |
| BT      | <u>0.46</u>                 | 0.67 | 0.69   | <b>0.46</b> | 0.58 | <i>0.47</i>                 | 0.53  | 0.84  | 0.48     | 0.57 | 0.82 | 0.52        | 0.93    | 0.55 | 0.65  | 0.56         | 0.53        | 0.53  | 0.53   | 0.53  | 0.53        | 0.51        | 0.51        |
| BW      | <u>0.41</u>                 | 0.59 | 0.59   | <b>0.36</b> | 0.50 | 0.48                        | 0.54  | 0.88  | 0.71     | 0.46 | 0.80 | 0.44        | 1.00    | 0.49 | 0.45  | 0.82         | 0.46        | 0.47  | 0.46   | 0.47  | <i>0.44</i> | 0.47        | 0.47        |
| BM      | <u>0.21</u>                 | 0.44 | 0.39   | <b>0.20</b> | 0.29 | 0.33                        | 0.41  | 0.65  | 0.41     | 0.37 | 0.65 | 0.22        | 0.73    | 0.31 | 0.24  | 0.48         | 0.24        | 0.24  | 0.24   | 0.25  | <i>0.22</i> | 0.24        | 0.24        |
| BP      | 0.40                        | 0.69 | 0.71   | 0.37        | 0.66 | 0.37                        | 0.63  | 0.77  | 0.72     | 0.46 | 0.68 | 0.36        | 0.83    | 0.40 | 0.40  | 0.88         | 0.36        | 0.37  | 0.37   | 0.36  | 0.36        | <b>0.34</b> | <b>0.34</b> |

With  $\hat{C}$  and  $C^*$ , we denote the GEF variant  $C$  that uses either its approximated or optimal split point, respectively.

**Table 2: Compression Throughput (MB/s) Bold: Best, Underlined: Second, *Italics*: Third.**

| Dataset | General-purpose compressors |        |               |      |        | Special-purpose compressors |        |        |          |        |        |        |               |               |       | GEF variants |               |        |        |        |        |        |         |
|---------|-----------------------------|--------|---------------|------|--------|-----------------------------|--------|--------|----------|--------|--------|--------|---------------|---------------|-------|--------------|---------------|--------|--------|--------|--------|--------|---------|
|         | Broli                       | Lz4    | Snappy        | Xz   | Zstd   | ALP                         | Camel  | Chimp  | Chimp128 | DAC    | Elf    | Falcon | Gorilla       | LeCo          | NeaTS | TSXor        | RLE-GEF       | U-GEF  | U-GEF* | B-GEF  | B-GEF* | B*-GEF | B*-GEF* |
| IT      | 0.61                        | 442.35 | 501.31        | 2.38 | 184.03 | <b>1150.28</b>              | 152.99 | 352.88 | 94.01    | 270.83 | 185.40 | 132.70 | <i>656.62</i> | <u>676.70</u> | 0.93  | 25.79        | 595.60        | 312.58 | 240.28 | 305.28 | 230.45 | 305.55 | 288.16  |
| US      | 0.47                        | 592.79 | 605.66        | 1.91 | 263.73 | <b>1166.41</b>              | 160.56 | 380.98 | 103.65   | 255.93 | 204.54 | 169.91 | <i>659.78</i> | <u>690.99</u> | 0.85  | 88.67        | 606.75        | 317.88 | 281.37 | 322.83 | 273.05 | 115.42 | 305.65  |
| ECG     | 0.49                        | 541.03 | 505.57        | 1.93 | 213.85 | <b>1224.58</b>              | 166.22 | 351.66 | 98.23    | 263.07 | 192.74 | 126.51 | 509.76        | <u>668.91</u> | 0.97  | 62.13        | <i>543.82</i> | 277.47 | 252.39 | 263.93 | 230.98 | 305.53 | 269.00  |
| WD      | 0.69                        | 444.31 | 471.34        | 3.07 | 176.50 | <b>1144.40</b>              | 114.37 | 348.78 | 100.61   | 242.56 | 164.79 | 100.97 | <u>696.08</u> | <i>602.99</i> | 1.21  | 16.28        | 519.86        | 294.93 | 191.65 | 294.48 | 186.73 | 313.38 | 283.93  |
| AP      | 0.34                        | 441.54 | 430.91        | 3.09 | 191.74 | <b>1178.13</b>              | 126.03 | 421.52 | 100.00   | 175.94 | 185.42 | 116.38 | <u>758.33</u> | <i>655.06</i> | 0.86  | 50.73        | 593.83        | 322.83 | 202.86 | 333.74 | 201.83 | 348.38 | 300.21  |
| UK      | 0.47                        | 596.55 | 665.63        | 1.99 | 260.94 | <b>1207.73</b>              | 182.03 | 372.88 | 198.32   | 242.99 | 184.54 | 161.15 | <u>719.00</u> | <i>688.38</i> | 0.79  | 89.32        | 627.52        | 318.40 | 270.75 | 321.79 | 264.61 | 147.30 | 284.17  |
| GE      | 0.51                        | 554.42 | 628.86        | 1.90 | 236.69 | <b>1190.77</b>              | 145.32 | 358.71 | 153.74   | 259.14 | 184.56 | 148.98 | <u>692.19</u> | <i>667.01</i> | 0.81  | 71.50        | 612.28        | 296.10 | 241.46 | 298.83 | 232.76 | 303.48 | 281.54  |
| LON     | 0.74                        | 410.05 | 440.85        | 3.19 | 158.00 | <b>1224.46</b>              | 130.99 | 511.80 | 271.65   | 212.62 | 183.34 | 124.01 | <u>682.23</u> | <i>664.94</i> | 0.84  | 19.73        | <u>755.51</u> | 399.76 | 191.12 | 401.54 | 192.42 | 426.22 | 374.51  |
| LAT     | 0.72                        | 406.75 | 446.68        | 3.22 | 155.01 | <b>1200.09</b>              | 142.22 | 506.26 | 251.82   | 213.78 | 193.54 | 113.21 | <u>676.35</u> | <i>654.05</i> | 0.89  | 19.46        | <u>748.54</u> | 398.03 | 175.73 | 398.20 | 177.25 | 422.64 | 375.70  |
| DP      | 0.67                        | 397.49 | 395.39        | 2.62 | 172.53 | <b>1174.17</b>              | 141.55 | 355.31 | 115.74   | 244.25 | 187.55 | 126.10 | 510.45        | <u>558.47</u> | 0.70  | 18.08        | <i>595.14</i> | 280.02 | 184.64 | 262.17 | 209.48 | 284.10 | 282.48  |
| CT      | 0.61                        | 385.29 | 464.48        | 2.18 | 173.27 | <b>1157.93</b>              | 131.21 | 340.30 | 106.46   | 254.39 | 166.60 | 127.89 | <u>680.35</u> | <i>622.12</i> | 0.77  | 22.67        | 508.65        | 271.39 | 251.08 | 267.36 | 249.24 | 303.04 | 265.01  |
| DU      | 0.41                        | 667.27 | <i>697.29</i> | 2.21 | 297.39 | <b>1187.17</b>              | 179.78 | 412.29 | 325.89   | 221.18 | 225.26 | 134.19 | <u>777.18</u> | <i>656.01</i> | 0.57  | 101.97       | 562.94        | 322.94 | 245.30 | 361.11 | 260.32 | 350.99 | 340.35  |
| BT      | 0.58                        | 392.03 | 358.25        | 2.84 | 144.51 | <b>1098.87</b>              | 105.51 | 358.01 | 233.56   | 155.59 | 137.09 | 69.84  | <u>665.07</u> | <i>481.23</i> | 1.26  | 17.59        | <i>567.58</i> | 323.01 | 113.68 | 306.08 | 126.17 | 304.18 | 294.56  |
| BW      | 0.55                        | 364.43 | 382.55        | 2.89 | 149.80 | <i>367.32</i>               | 100.44 | 337.59 | 232.14   | 157.03 | 123.73 | 72.65  | <b>711.52</b> | <i>576.47</i> | 1.11  | 18.06        | <u>673.24</u> | 310.63 | 128.14 | 348.15 | 114.65 | 325.03 | 273.04  |
| BM      | 0.52                        | 392.18 | 405.10        | 2.16 | 152.74 | <b>760.28</b>               | 118.49 | 360.90 | 224.46   | 95.80  | 143.31 | 95.49  | <u>667.98</u> | <i>594.68</i> | 0.62  | 32.38        | <i>656.96</i> | 317.44 | 184.03 | 335.79 | 180.75 | 364.45 | 323.45  |
| BP      | 0.54                        | 336.05 | 311.96        | 2.23 | 117.38 | 450.78                      | 99.88  | 343.65 | 237.94   | 146.31 | 154.83 | 82.51  | <b>689.55</b> | <i>486.39</i> | 1.17  | 16.32        | <u>608.94</u> | 275.50 | 160.01 | 265.43 | 152.98 | 290.93 | 265.02  |

With  $\hat{C}$  and  $C^*$ , we denote the GEF variant  $C$  that uses either its approximated or optimal split point, respectively.

**Table 3: Decompression Throughput (GB/s) Bold: Best, Underlined: Second, *Italics*: Third.**

|         | General-purpose compressors |      |        |      |      | Special-purpose compressors |       |       |          |      |      |        |         |             |             | GEF variants |         |       |       |        |
|---------|-----------------------------|------|--------|------|------|-----------------------------|-------|-------|----------|------|------|--------|---------|-------------|-------------|--------------|---------|-------|-------|--------|
| Dataset | Broli                       | Lz4  | Snappy | Xz   | Zstd | ALP                         | Camel | Chimp | Chimp128 | DAC  | Elf  | Falcon | Gorilla | LeCo        | NeaTS       | TSXor        | RLE-GEF | U-GEF | B-GEF | B*-GEF |
| IT      | 0.30                        | 0.79 | 0.49   | 0.08 | 0.33 | <b>3.94</b>                 | 0.24  | 0.49  | 0.50     | 1.40 | 0.28 | 0.43   | 0.58    | 2.81        | <u>3.20</u> | 0.58         | 0.99    | 1.09  | 0.83  | 1.17   |
| US      | 0.41                        | 1.03 | 0.78   | 0.12 | 0.47 | <u>4.09</u>                 | 0.28  | 0.54  | 0.69     | 1.18 | 0.33 | 0.55   | 0.60    | 2.93        | <b>4.43</b> | 0.88         | 1.12    | 1.20  | 1.12  | 1.36   |
| ECG     | 0.27                        | 0.96 | 0.59   | 0.09 | 0.43 | <b>5.53</b>                 | 0.29  | 0.49  | 0.52     | 1.45 | 0.25 | 0.39   | 0.48    | 2.71        | <u>3.92</u> | 0.69         | 0.90    | 0.96  | 0.80  | 1.17   |
| WD      | 0.22                        | 1.06 | 0.42   | 0.05 | 0.34 | <b>5.88</b>                 | 0.16  | 0.47  | 0.47     | 1.14 | 0.25 | 0.30   | 0.61    | 2.67        | <u>4.08</u> | 0.56         | 0.73    | 0.80  | 0.72  | 1.13   |
| AP      | 0.30                        | 0.83 | 0.69   | 0.08 | 0.45 | <b>5.71</b>                 | 0.16  | 0.68  | 0.53     | 0.64 | 0.38 | 0.31   | 0.74    | 2.59        | <u>3.78</u> | 0.72         | 0.88    | 1.20  | 0.96  | 1.11   |
| UK      | 0.41                        | 1.04 | 0.81   | 0.12 | 0.48 | <b>4.90</b>                 | 0.33  | 0.53  | 0.56     | 1.03 | 0.34 | 0.53   | 0.64    | 2.93        | <u>4.45</u> | 0.86         | 1.13    | 1.19  | 1.01  | 1.31   |
| GE      | 0.36                        | 0.99 | 0.76   | 0.10 | 0.45 | <b>6.17</b>                 | 0.25  | 0.51  | 0.63     | 1.27 | 0.29 | 0.46   | 0.61    | 2.85        | <u>4.57</u> | 0.80         | 1.06    | 1.09  | 0.87  | 1.19   |
| LON     | 0.29                        | 0.92 | 0.44   | 0.06 | 0.31 | <b>4.36</b>                 | 0.17  | 0.80  | 0.50     | 1.40 | 0.31 | 0.33   | 0.60    | 2.63        | <u>4.00</u> | 0.55         | 1.38    | 1.22  | 0.96  | 1.59   |
| LAT     | 0.23                        | 0.96 | 0.44   | 0.05 | 0.30 | <b>4.35</b>                 | 0.20  | 0.77  | 0.43     | 1.36 | 0.31 | 0.29   | 0.59    | 2.52        | <u>4.31</u> | 0.52         | 1.36    | 1.12  | 0.95  | 1.54   |
| DP      | 0.28                        | 0.86 | 0.43   | 0.06 | 0.29 | <b>6.40</b>                 | 0.20  | 0.50  | 0.40     | 1.46 | 0.27 | 0.43   | 0.58    | <u>2.64</u> | 2.25        | 0.47         | 0.95    | 0.99  | 0.82  | 1.14   |
| CT      | 0.27                        | 0.73 | 0.50   | 0.07 | 0.31 | <b>5.02</b>                 | 0.24  | 0.45  | 0.47     | 1.30 | 0.28 | 0.45   | 0.58    | <u>2.75</u> | 2.15        | 0.58         | 0.74    | 0.89  | 0.74  | 1.13   |
| DU      | 0.44                        | 1.16 | 0.87   | 0.14 | 0.53 | <b>7.94</b>                 | 0.34  | 0.66  | 0.59     | 0.79 | 0.36 | 0.42   | 0.75    | 2.84        | <u>3.54</u> | 0.90         | 1.07    | 1.24  | 1.13  | 1.45   |
| BT      | 0.16                        | 0.88 | 0.42   | 0.03 | 0.31 | <b>8.50</b>                 | 0.09  | 0.50  | 0.45     | 1.17 | 0.25 | 0.18   | 0.60    | <u>2.17</u> | 1.56        | 0.50         | 0.82    | 0.84  | 0.81  | 1.07   |
| BW      | 0.15                        | 0.83 | 0.44   | 0.04 | 0.29 | <u>3.43</u>                 | 0.10  | 0.48  | 0.37     | 1.28 | 0.22 | 0.19   | 0.63    | 2.20        | <b>4.75</b> | 0.46         | 1.36    | 1.18  | 0.89  | 1.41   |
| BM      | 0.22                        | 0.84 | 0.49   | 0.06 | 0.36 | <b>9.58</b>                 | 0.16  | 0.50  | 0.51     | 0.84 | 0.27 | 0.25   | 0.61    | 2.53        | <u>2.73</u> | 0.58         | 1.59    | 1.06  | 0.84  | 1.50   |
| BP      | 0.17                        | 1.12 | 0.41   | 0.02 | 0.25 | <b>6.15</b>                 | 0.12  | 0.51  | 0.40     | 1.35 | 0.26 | 0.22   | 0.60    | 2.38        | <u>4.40</u> | 0.46         | 0.88    | 0.90  | 0.84  | 1.19   |

**Table 4: Random Access Throughput (MB/s) Bold: Best, Underlined: Second, *Italics*: Third.**

| Dataset | General-purpose compressors |      |        |      |      | Special-purpose compressors |       |       |          |               |      |        |         |                |        | GEF variants |               |        |       |        |
|---------|-----------------------------|------|--------|------|------|-----------------------------|-------|-------|----------|---------------|------|--------|---------|----------------|--------|--------------|---------------|--------|-------|--------|
|         | Brzli                       | Lz4  | Snappy | Xz   | Zstd | ALP                         | Camel | Chimp | Chimp128 | DAC           | Elf  | Falcon | Gorilla | LeCo           | NeaTS  | TSXor        | RLE-GEF       | U-GEF  | B-GEF | B*-GEF |
| IT      | 0.33                        | 0.98 | 0.55   | 0.08 | 0.35 | 7.22                        | 0.48  | 0.87  | 0.89     | <b>140.37</b> | 0.53 | 0.50   | 0.97    | <u>121.42</u>  | 44.58  | 1.02         | <i>64.78</i>  | 18.94  | 9.32  | 22.71  |
| US      | 0.44                        | 1.32 | 0.93   | 0.12 | 0.52 | 8.02                        | 0.56  | 0.95  | 1.40     | <u>76.99</u>  | 0.61 | 0.63   | 1.07    | <b>134.66</b>  | 53.60  | 1.58         | <i>68.01</i>  | 21.84  | 11.22 | 28.35  |
| ECG     | 0.32                        | 1.21 | 0.77   | 0.09 | 0.47 | 5.83                        | 0.56  | 0.83  | 1.01     | <b>139.14</b> | 0.49 | 0.46   | 0.81    | <u>121.78</u>  | 48.52  | 1.33         | <i>60.28</i>  | 10.52  | 10.33 | 24.98  |
| WD      | 0.23                        | 1.37 | 0.48   | 0.05 | 0.37 | 7.36                        | 0.31  | 0.82  | 0.90     | <u>133.38</u> | 0.48 | 0.33   | 1.00    | <b>142.19</b>  | 11.47  | 1.02         | <i>71.40</i>  | 26.14  | 14.64 | 30.24  |
| AP      | 0.35                        | 1.21 | 0.78   | 0.09 | 0.51 | 5.72                        | 0.31  | 1.10  | 1.10     | <u>66.26</u>  | 0.69 | 0.35   | 1.29    | <b>135.02</b>  | 23.69  | 1.25         | <u>75.79</u>  | 26.05  | 15.93 | 26.60  |
| UK      | 0.45                        | 1.35 | 0.99   | 0.12 | 0.53 | 6.03                        | 0.67  | 0.95  | 1.13     | <u>129.98</u> | 0.63 | 0.60   | 1.13    | <b>193.98</b>  | 69.66  | 1.57         | <i>113.17</i> | 31.08  | 15.92 | 36.17  |
| GE      | 0.39                        | 1.28 | 0.91   | 0.11 | 0.50 | 6.25                        | 0.48  | 0.92  | 1.28     | <u>179.22</u> | 0.53 | 0.53   | 1.06    | <b>202.92</b>  | 66.50  | 1.47         | <i>119.35</i> | 35.01  | 16.77 | 40.35  |
| LON     | 0.31                        | 1.16 | 0.49   | 0.06 | 0.35 | 10.50                       | 0.33  | 1.42  | 1.01     | <u>204.02</u> | 0.58 | 0.36   | 1.07    | <b>212.05</b>  | 76.67  | 0.99         | <i>136.65</i> | 35.69  | 19.68 | 46.74  |
| LAT     | 0.25                        | 1.20 | 0.49   | 0.05 | 0.33 | 10.39                       | 0.39  | 1.37  | 0.87     | <u>203.26</u> | 0.58 | 0.31   | 1.06    | <b>207.58</b>  | 72.32  | 0.94         | <i>130.67</i> | 34.98  | 19.55 | 46.35  |
| DP      | 0.31                        | 1.05 | 0.48   | 0.06 | 0.32 | 14.26                       | 0.39  | 0.92  | 0.80     | <u>319.40</u> | 0.57 | 0.47   | 1.02    | <b>419.93</b>  | 99.87  | 0.89         | <i>212.01</i> | 51.21  | 27.95 | 69.74  |
| CT      | 0.28                        | 0.89 | 0.57   | 0.07 | 0.35 | 17.28                       | 0.47  | 0.83  | 1.06     | <u>460.05</u> | 0.55 | 0.50   | 1.07    | <b>561.48</b>  | 116.44 | 1.12         | <i>240.90</i> | 68.91  | 34.23 | 82.39  |
| DU      | 0.51                        | 1.57 | 1.10   | 0.14 | 0.62 | 27.53                       | 0.67  | 1.23  | 1.34     | <u>393.38</u> | 0.71 | 0.47   | 1.33    | <b>953.09</b>  | 132.78 | 1.61         | <i>320.34</i> | 70.73  | 42.21 | 96.88  |
| BT      | 0.18                        | 1.13 | 0.47   | 0.03 | 0.34 | 21.83                       | 0.19  | 0.94  | 0.94     | <u>654.43</u> | 0.46 | 0.19   | 1.07    | <b>999.03</b>  | 122.00 | 0.97         | <i>292.19</i> | 67.32  | 38.91 | 94.63  |
| BW      | 0.16                        | 1.04 | 0.50   | 0.04 | 0.32 | 9.71                        | 0.19  | 0.86  | 0.80     | <u>764.17</u> | 0.44 | 0.21   | 1.13    | <b>984.79</b>  | 132.25 | 0.88         | <i>297.95</i> | 75.99  | 40.97 | 91.14  |
| BM      | 0.26                        | 1.11 | 0.59   | 0.06 | 0.43 | 26.32                       | 0.32  | 1.02  | 1.12     | <u>502.65</u> | 0.53 | 0.28   | 1.17    | <b>1083.34</b> | 136.37 | 1.13         | <i>344.71</i> | 89.25  | 52.11 | 119.83 |
| BP      | 0.21                        | 1.62 | 0.48   | 0.03 | 0.32 | 28.46                       | 0.25  | 1.06  | 0.94     | <u>866.33</u> | 0.55 | 0.26   | 1.24    | <b>1159.38</b> | 128.05 | 1.00         | <i>317.75</i> | 105.95 | 57.97 | 118.63 |