



Consolidated Tape Association

Key Operating Metrics of Tape A&B U.S. Equities Securities Information Processor (CTA SIP)

| CQS: Quote Feed (Tape A&B) |                         |                                      |   |                        |  |  |                        |   |   |                                      |  |                          |                         |                              |                              |                              |
|----------------------------|-------------------------|--------------------------------------|---|------------------------|--|--|------------------------|---|---|--------------------------------------|--|--------------------------|-------------------------|------------------------------|------------------------------|------------------------------|
| Quarter                    | System Availability (1) | Peak Messages Per Second (thousands) | Capacity Messages Per Second (millions) | Capacity vs Peak Ratio | Peak Messages Per 100 Milliseconds (thousands) (2) | Capacity Messages Per 100 Milliseconds (thousands) | Capacity vs Peak Ratio | Peak Messages Per 10 Milliseconds (thousands) | Peak Messages Per 1 Millisecond (thousands) | Peak Transactions Per Day (millions) | Capacity Transactions Per Day (billions) | Average Latency (us) (3) | Median Latency (us) (3) | 10th Percentile Latency (us) | 90th Percentile Latency (us) | 99th Percentile Latency (us) |
| 1Q20                       | 100.00%                 | 1119                                 | n/a                                     | n/a                    | 232.6  | 900  | 3.9:1                  | 539.1   | 651.8                                       | 2139                                 | 16                                       | 69.8                     | 60.0                    | 49.0                         | 82.0                         | 243.0                        |
| Jan'20                     | 100.00%                 | 981                                  | n/a                                     | n/a                    | 232.6  | 850  | 3.7:1                  | 539.1   | 642.9                                       | 1042                                 | 16                                       | 69.1                     | 61.0                    | 48.7                         | 82.0                         | 243.0                        |
| Feb'20                     | 100.00%                 | 1119                                 | n/a                                     | n/a                    | 228.0  | 900  | 3.9:1                  | 532.4   | 649.3                                       | 2139                                 | 16                                       | 71.0                     | 60.0                    | 49.0                         | 82.0                         | 252.0                        |
| Mar'20                     | 100.00%                 | 724                                  | n/a                                     | n/a                    | 213.9  | 900  | 4.2:1                  | 519.3   | 651.8                                       | 2139                                 | 16                                       | 69.5                     | 60.0                    | 48.7                         | 83.0                         | 213.0                        |
| 2Q20                       | 100.00%                 | 1018                                 | n/a                                     | n/a                    | 259.0  | 900  | 3.5:1                  | 581.5   | 628.8                                       | 1947                                 | 16                                       | 71.0                     | 60.0                    | 49.0                         | 85.0                         | 234.0                        |
| Apr'20                     | 100.00%                 | 808                                  | n/a                                     | n/a                    | 219.9  | 900  | 4.1:1                  | 496.3   | 628.8                                       | 1354                                 | 16                                       | 67.9                     | 60.0                    | 49.0                         | 83.0                         | 219.0                        |
| May'20                     | 100.00%                 | 1015                                 | n/a                                     | n/a                    | 259.0  | 900  | 3.5:1                  | 470.5   | 625.0                                       | 1382                                 | 16                                       | 70.6                     | 60.5                    | 49.5                         | 86.5                         | 237.0                        |
| Jun'20                     | 100.00%                 | 1018                                 | n/a                                     | n/a                    | 254.2  | 900  | 3.5:1                  | 581.5   | 605.2                                       | 1947                                 | 16                                       | 74.4                     | 65.0                    | 54.0                         | 91.0                         | 253.0                        |
| 3Q20                       | 100.00%                 | 1005                                 | n/a                                     | n/a                    | 274.6  | 950  | 3.5:1                  | 526.6   | 703.2                                       | 1853                                 | 16                                       | 20.3                     | 16.5                    | 14.1                         | 19.3                         | 27.6                         |
| Jul'20                     | 100.00%                 | 1005                                 | n/a                                     | n/a                    | 274.6  | 950  | 3.5:1                  | 526.6   | 688.0                                       | 1396                                 | 16                                       | 26.2                     | 16.3                    | 13.9                         | 19.1                         | 27.1                         |
| Aug'20                     | 100.00%                 | 699                                  | n/a                                     | n/a                    | 230.6  | 950  | 4.1:1                  | 490.6   | 703.2                                       | 1027                                 | 16                                       | 17.0                     | 16.1                    | 13.9                         | 18.9                         | 24.3                         |
| Sep'20                     | 100.00%                 | 784                                  | n/a                                     | n/a                    | 232.7  | 950  | 4.1:1                  | 501.2   | 643.5                                       | 1853                                 | 16                                       | 19.5                     | 16.8                    | 14.5                         | 19.9                         | 37.3                         |
| 4Q20                       | 100.00%                 | 991                                  | n/a                                     | n/a                    | 263.0  | 950  | 3.6:1                  | 525.9   | 698.0                                       | 1542                                 | 16                                       | 18.4                     | 16.6                    | 14.4                         | 19.5                         | 27.5                         |
| Oct'20                     | 100.00%                 | 991                                  | n/a                                     | n/a                    | 263.0  | 950  | 3.6:1                  | 511.7   | 657.4                                       | 1390                                 | 16                                       | 19.8                     | 16.8                    | 14.3                         | 19.9                         | 34.4                         |
| Nov'20                     | 100.00%                 | 826                                  | n/a                                     | n/a                    | 223.6  | 950  | 4.2:1                  | 525.9   | 685.3                                       | 1542                                 | 16                                       | 18.6                     | 16.6                    | 14.3                         | 19.5                         | 27.6                         |
| Dec'20                     | 100.00%                 | 778                                  | n/a                                     | n/a                    | 228.0  | 950  | 4.2:1                  | 519.7   | 698.0                                       | 1119                                 | 16                                       | 16.9                     | 16.6                    | 14.3                         | 19.3                         | 25.3                         |
| 1Q21                       | 100.00%                 | 960                                  | n/a                                     | n/a                    | 240.4  | 950  | 4.0:1                  | 567.3   | 721.1                                       | 2566                                 | 16                                       | 17.3                     | 16.6                    | 14.3                         | 19.5                         | 26.8                         |
| Jan'21                     | 100.00%                 | 766                                  | n/a                                     | n/a                    | 219.3  | 950  | 4.3:1                  | 565.5   | 696.4                                       | 1636                                 | 16                                       | 17.3                     | 16.6                    | 14.3                         | 19.5                         | 26.8                         |
| Feb'21                     | 100.00%                 | 695                                  | n/a                                     | n/a                    | 230.9  | 950  | 4.1:1                  | 539.2   | 721.1                                       | 2126                                 | 16                                       | 17.1                     | 16.6                    | 14.3                         | 19.3                         | 26.3                         |
| Mar'21                     | 100.00%                 | 960                                  | n/a                                     | n/a                    | 240.4  | 950  | 4.0:1                  | 567.3   | 691.6                                       | 2566                                 | 16                                       | 17.3                     | 16.8                    | 14.5                         | 19.5                         | 28.2                         |
| 2Q21                       | 99.99%                  | 796                                  | n/a                                     | n/a                    | 250.7  | 950  | 3.8:1                  | 563.8   | 716.9                                       | 2081                                 | 16                                       | 17.3                     | 16.6                    | 14.3                         | 19.5                         | 26.8                         |
| Apr'21                     | 100.00%                 | 678                                  | n/a                                     | n/a                    | 231.6  | 950  | 4.1:1                  | 554.8   | 716.9                                       | 1599                                 | 16                                       | 17.2                     | 16.6                    | 14.3                         | 19.3                         | 28.5                         |
| May'21                     | 99.97%                  | 796                                  | n/a                                     | n/a                    | 250.7  | 950  | 3.8:1                  | 557.1   | 700.3                                       | 2081                                 | 16                                       | 17.3                     | 16.6                    | 14.3                         | 19.7                         | 27.1                         |
| Jun'21                     | 100.00%                 | 730                                  | n/a                                     | n/a                    | 211.5  | 950  | 4.5:1                  | 563.8   | 708.7                                       | 1552                                 | 16                                       | 17.3                     | 17.0                    | 14.8                         | 19.7                         | 25.0                         |
| 3Q21                       | 100.00%                 | 1030                                 | n/a                                     | n/a                    | 292.2  | 950  | 3.3:1                  | 576.1   | 704.1                                       | 2073                                 | 16                                       | 17.5                     | 17.1                    | 14.7                         | 19.9                         | 26.0                         |
| Jul'21                     | 100.00%                 | 675                                  | n/a                                     | n/a                    | 235.0  | 950  | 4.0:1                  | 576.1   | 704.1                                       | 2073                                 | 16                                       | 24.5                     | 17.0                    | 14.8                         | 19.7                         | 25.8                         |
| Aug'21                     | 100.00%                 | 631                                  | n/a                                     | n/a                    | 220.0  | 950  | 4.3:1                  | 536.5   | 670.9                                       | 1811                                 | 16                                       | 17.3                     | 16.9                    | 14.7                         | 19.7                         | 25.1                         |
| Sep'21                     | 100.00%                 | 1030                                 | n/a                                     | n/a                    | 292.2  | 950  | 3.3:1                  | 567.0   | 678.8                                       | 2040                                 | 16                                       | 17.7                     | 17.1                    | 14.7                         | 20.1                         | 28.4                         |
| 4Q21                       | 100.00%                 | 921                                  | n/a                                     | n/a                    | 274.2  | 950  | 3.5:1                  | 563.0   | 707.1                                       | 2151                                 | 16                                       | 17.5                     | 17.1                    | 14.7                         | 19.9                         | 26.5                         |
| Oct'21                     | 100.00%                 | 921                                  | n/a                                     | n/a                    | 274.2  | 950  | 3.5:1                  | 563.0   | 707.1                                       | 2014                                 | 16                                       | 17.6                     | 17.1                    | 14.7                         | 19.9                         | 27.3                         |
| Nov'21                     | 100.00%                 | 813                                  | n/a                                     | n/a                    | 220.5  | 950  | 4.3:1                  | 533.9   | 646.8                                       | 1939                                 | 16                                       | 17.4                     | 17.1                    | 14.7                         | 19.9                         | 25.2                         |
| Dec'21                     | 100.00%                 | 868                                  | n/a                                     | n/a                    | 230.1  | 950  | 4.1:1                  | 543.6   | 655.6                                       | 2151                                 | 16                                       | 17.5                     | 17.1                    | 14.9                         | 20.1                         | 27.2                         |
| 1Q22                       | 100.00%                 | 1031                                 | n/a                                     | n/a                    | 261.5  | 950  | 3.6:1                  | 554.0   | 664.6                                       | 3165                                 | 20                                       | 18.0                     | 17.3                    | 14.9                         | 20.5                         | 30.5                         |
| Jan'22                     | 100.00%                 | 843                                  | n/a                                     | n/a                    | 250.0  | 950  | 3.8:1                  | 533.9   | 658.4                                       | 3165                                 | 20                                       | 18.1                     | 17.3                    | 14.9                         | 20.3                         | 30.2                         |
| Feb'22                     | 100.00%                 | 1031                                 | n/a                                     | n/a                    | 261.5  | 950  | 3.6:1                  | 554.0   | 663.1                                       | 2722                                 | 20                                       | 18.1                     | 17.3                    | 14.9                         | 20.5                         | 30.8                         |
| Mar'22                     | 100.00%                 | 988                                  | n/a                                     | n/a                    | 250.2  | 950  | 3.8:1                  | 549.2   | 664.6                                       | 2809                                 | 20                                       | 17.9                     | 17.3                    | 14.9                         | 20.3                         | 29.9                         |

(1) Service level guidelines: (A) 99.98% system availability; (B) 10 minute recovery time for full system failures; (C) Operations production support 24x5 in primary and backup data center and test support provided on Tuesdays, Thursdays, and Saturdays.

(2) Beginning 1Q14, capacity planning interval changed from 1-second to 100-microseconds.

(3) Message latency is measured beginning with the time-stamp taken as an inbound Participant message arrives at the network entrance to the CTS/CQS environment, through processing by the system into a consolidated message for Data Recipients, to the time-stamp taken as the outbound message arrives at the network exit from the environment. Latency is represented in milliseconds.

| CTS: Trade Feed (Tape A&B) |                         |                                      |  |                        |  |  |                        |   |   |                                      |  |                     |                    |                         |                         |                         |
|----------------------------|-------------------------|--------------------------------------|--|------------------------|--|--|------------------------|---|---|--------------------------------------|--|---------------------|--------------------|-------------------------|-------------------------|-------------------------|
| Quarter                    | System Availability (1) | Peak Messages Per Second (thousands) | Capacity Messages Per Second (thousands) | Capacity vs Peak Ratio | Peak Messages Per 100 Milliseconds (thousands) (2) | Capacity Messages Per 100 Milliseconds (thousands) | Capacity vs Peak Ratio | Peak Messages Per 10 Milliseconds (thousands) | Peak Messages Per 1 Millisecond (thousands) | Peak Transactions Per Day (millions) | Capacity Transactions Per Day (millions) | Average Latency (3) | Median Latency (3) | 10th Percentile Latency | 90th Percentile Latency | 99th Percentile Latency |
| 1Q20                       | 100.00%                 | 130.2                                | n/a                                      | n/a                    | 67.5   | 300  | 4.4:1                  | 165.5   | 261.2                                       | 89.2                                 | 1000                                     | 88.1                | 65.0               | 43.5                    | 116.0                   | 440.5                   |
| Jan '20                    | 100.00%                 | 125.9                                | n/a                                      | n/a                    | 50.9   | 300  | 5.9:1                  | 153.8   | 240.7                                       | 50.5                                 | 1000                                     | 87.1                | 65.0               | 43.0                    | 118.0                   | 430.0                   |
| Feb '20                    | 100.00%                 | 130.2                                | n/a                                      | n/a                    | 47.1   | 300  | 6.4:1                  | 165.5   | 261.2                                       | 89.2                                 | 1000                                     | 88.3                | 65.0               | 43.0                    | 117.0                   | 440.0                   |
| Mar '20                    | 100.00%                 | 123.6                                | n/a                                      | n/a                    | 67.5   | 300  | 4.4:1                  | 156.0   | 229.1                                       | 87.4                                 | 1000                                     | 89.0                | 64.5               | 45.0                    | 107.0                   | 454.0                   |
| 2Q20                       | 100.00%                 | 150.5                                | n/a                                      | n/a                    | 85.4   | 300  | 3.5:1                  | 192.0   | 248.3                                       | 76.9                                 | 1000                                     | 94.5                | 66.0               | 47.0                    | 115.0                   | 482.0                   |
| Apr '20                    | 100.00%                 | 150.5                                | n/a                                      | n/a                    | 85.4   | 300  | 3.5:1                  | 184.7   | 232.5                                       | 76.9                                 | 1000                                     | 91.2                | 65.0               | 44.0                    | 112.0                   | 484.0                   |
| May '20                    | 100.00%                 | 143.8                                | n/a                                      | n/a                    | 66.4   | 300  | 4.5:1                  | 161.9   | 226.3                                       | 63.9                                 | 1000                                     | 92.4                | 65.5               | 45.5                    | 114.5                   | 464.5                   |
| Jun '20                    | 100.00%                 | 124.7                                | n/a                                      | n/a                    | 54.4   | 300  | 5.5:1                  | 192.0   | 248.3                                       | 73.6                                 | 1000                                     | 99.1                | 71.0               | 50.0                    | 122.0                   | 484.0                   |
| 3Q20                       | 100.00%                 | 125.6                                | n/a                                      | n/a                    | 84.4   | 350  | 4.1:1                  | 200.3   | 326.3                                       | 60.4                                 | 500                                      | 19.2                | 17.8               | 15.1                    | 21.3                    | 29.0                    |
| Jul '20                    | 100.00%                 | 125.6                                | n/a                                      | n/a                    | 60.2   | 350  | 5.8:1                  | 198.0   | 305.7                                       | 56.4                                 | 500                                      | 19.2                | 17.7               | 15.1                    | 21.1                    | 29.1                    |
| Aug '20                    | 100.00%                 | 69.6                                 | n/a                                      | n/a                    | 39.4   | 350  | 8.9:1                  | 185.2   | 326.3                                       | 57.3                                 | 500                                      | 18.4                | 17.7               | 14.9                    | 20.9                    | 27.9                    |
| Sep '20                    | 100.00%                 | 86.7                                 | n/a                                      | n/a                    | 84.4   | 350  | 4.1:1                  | 200.3   | 299.9                                       | 60.4                                 | 500                                      | 20.0                | 18.2               | 15.5                    | 21.8                    | 31.1                    |
| 4Q20                       | 100.00%                 | 114.7                                | n/a                                      | n/a                    | 59.8   | 350  | 5.9:1                  | 204.4   | 282.7                                       | 82.2                                 | 500                                      | 19.3                | 17.8               | 15.4                    | 21.3                    | 29.3                    |
| Oct '20                    | 100.00%                 | 114.7                                | n/a                                      | n/a                    | 59.8   | 350  | 5.9:1                  | 156.1   | 281.7                                       | 59.5                                 | 500                                      | 19.8                | 18.0               | 15.4                    | 21.8                    | 31.0                    |
| Nov '20                    | 100.00%                 | 83.4                                 | n/a                                      | n/a                    | 49.2   | 350  | 7.1:1                  | 204.4   | 278.6                                       | 82.2                                 | 500                                      | 19.5                | 17.9               | 15.4                    | 21.3                    | 29.6                    |
| Dec '20                    | 100.00%                 | 92.0                                 | n/a                                      | n/a                    | 40.6   | 350  | 8.6:1                  | 164.8   | 282.7                                       | 58.0                                 | 500                                      | 18.7                | 17.8               | 15.2                    | 21.1                    | 28.3                    |
| 1Q21                       | 100.00%                 | 101.1                                | n/a                                      | n/a                    | 47.0   | 350  | 7.4:1                  | 213.2   | 383.9                                       | 93.9                                 | 500                                      | 20.2                | 17.8               | 15.2                    | 21.3                    | 29.9                    |
| Jan '21                    | 100.00%                 | 84.9                                 | n/a                                      | n/a                    | 39.1   | 350  | 9.0:1                  | 159.8   | 291.8                                       | 93.9                                 | 500                                      | 19.8                | 17.8               | 15.2                    | 21.1                    | 29.9                    |
| Feb '21                    | 100.00%                 | 66.3                                 | n/a                                      | n/a                    | 39.3   | 350  | 8.9:1                  | 178.7   | 364.5                                       | 78.3                                 | 500                                      | 21.0                | 17.7               | 15.1                    | 21.1                    | 29.9                    |
| Mar '21                    | 100.00%                 | 101.1                                | n/a                                      | n/a                    | 47.0   | 350  | 7.4:1                  | 213.2   | 383.9                                       | 83.1                                 | 720                                      | 19.9                | 18.0               | 15.2                    | 21.6                    | 29.3                    |
| 2Q21                       | 99.99%                  | 99.3                                 | n/a                                      | n/a                    | 51.9   | 350  | 6.7:1                  | 194.6   | 372.1                                       | 66.9                                 | 720                                      | 20.9                | 18.0               | 15.4                    | 21.8                    | 29.6                    |
| Apr '21                    | 100.00%                 | 66.5                                 | n/a                                      | n/a                    | 37.3   | 350  | 9.4:1                  | 194.6   | 372.1                                       | 57.1                                 | 720                                      | 19.6                | 17.8               | 15.2                    | 21.3                    | 29.6                    |
| May '21                    | 99.97%                  | 70.9                                 | n/a                                      | n/a                    | 38.8   | 350  | 9.0:1                  | 178.6   | 271.7                                       | 65.2                                 | 720                                      | 26.7                | 18.0               | 15.4                    | 21.8                    | 31.1                    |
| Jun '21                    | 100.00%                 | 99.3                                 | n/a                                      | n/a                    | 51.9   | 350  | 6.7:1                  | 152.1   | 265.4                                       | 66.9                                 | 720                                      | 19.4                | 18.4               | 15.8                    | 21.8                    | 29.2                    |
| 3Q21                       | 100.00%                 | 104.9                                | n/a                                      | n/a                    | 56.9   | 350  | 6.2:1                  | 229.2   | 382.4                                       | 70.1                                 | 720                                      | 19.4                | 18.5               | 15.8                    | 21.9                    | 29.3                    |
| Jul '21                    | 100.00%                 | 67.3                                 | n/a                                      | n/a                    | 35.6   | 350  | 9.8:1                  | 198.2   | 275.4                                       | 70.1                                 | 720                                      | 25.4                | 18.4               | 15.8                    | 22.0                    | 29.6                    |
| Aug '21                    | 100.00%                 | 69.8                                 | n/a                                      | n/a                    | 37.2   | 350  | 9.4:1                  | 139.3   | 262.0                                       | 61.8                                 | 720                                      | 19.0                | 18.3               | 15.8                    | 21.8                    | 28.7                    |
| Sep '21                    | 100.00%                 | 104.9                                | n/a                                      | n/a                    | 56.9   | 350  | 6.2:1                  | 229.2   | 382.4                                       | 68.1                                 | 720                                      | 19.7                | 18.5               | 15.9                    | 22.2                    | 30.2                    |
| 4Q21                       | 100.00%                 | 113.2                                | n/a                                      | n/a                    | 58.7   | 350  | 6.0:1                  | 188.4   | 293.4                                       | 75.8                                 | 720                                      | 19.6                | 18.5               | 15.8                    | 21.9                    | 29.6                    |
| Oct '21                    | 100.00%                 | 74.0                                 | n/a                                      | n/a                    | 44.2   | 350  | 7.9:1                  | 188.4   | 279.3                                       | 63.4                                 | 720                                      | 19.6                | 18.5               | 15.8                    | 21.9                    | 29.6                    |
| Nov '21                    | 100.00%                 | 112.4                                | n/a                                      | n/a                    | 52.1   | 350  | 6.7:1                  | 161.5   | 293.4                                       | 75.7                                 | 720                                      | 19.5                | 18.3               | 15.8                    | 21.7                    | 29.3                    |
| Dec '21                    | 100.00%                 | 113.2                                | n/a                                      | n/a                    | 58.7   | 350  | 6.0:1                  | 174.7   | 267.8                                       | 75.8                                 | 720                                      | 19.6                | 18.5               | 15.9                    | 22.2                    | 29.9                    |
| 1Q22                       | 100.00%                 | 128.3                                | n/a                                      | n/a                    | 63.6   | 350  | 5.5:1                  | 198.9   | 284.5                                       | 101.0                                | 720                                      | 20.6                | 18.7               | 15.9                    | 22.4                    | 32.4                    |
| Jan '22                    | 100.00%                 | 90.2                                 | n/a                                      | n/a                    | 44.2   | 350  | 7.9:1                  | 153.9   | 280.1                                       | 101.0                                | 720                                      | 20.5                | 18.6               | 15.9                    | 22.4                    | 32.4                    |
| Feb '22                    | 100.00%                 | 124.7                                | n/a                                      | n/a                    | 63.0   | 350  | 5.6:1                  | 198.9   | 279.4                                       | 95.5                                 | 720                                      | 21.0                | 18.7               | 15.9                    | 22.4                    | 32.4                    |
| Mar '22                    | 100.00%                 | 128.3                                | n/a                                      | n/a                    | 63.6   | 350  | 5.5:1                  | 185.0   | 284.5                                       | 95.7                                 | 720                                      | 20.5                | 18.5               | 15.8                    | 22.2                    | 32.0                    |

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(2) Beginning 1Q14, capacity planning interval changed from 1-second to 100-milliseconds.

(3) Message latency is measured beginning with the time-stamp taken as an inbound Participant message arrives at the network entrance to the CTS/CQS environment, through processing by the system into a consolidated message for Data Recipients, to the time-stamp taken as the outbound message arrives at the network exit from the environment. Latency is represented in microseconds.