



Consolidated Tape Association

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

Quote Feed (Tape A&B)														
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 Transactions Per Day (millions)	Capacity Transactions Per Day (billions)	Average Latency (3)	Median Latency (3)	10th Percentile Latency	90th Percentile Latency	99th Percentile Latency	
1Q10	100.00%	215	0.25	1.2:1	n/a	n/a	n/a	619	8	4.04	n/a	n/a	n/a	n/a
2Q10	99.99%	233	0.25	1.1:1	n/a	n/a	n/a	1112	8	6.43	n/a	n/a	n/a	n/a
3Q10	99.99%	299	0.30	1.0:1	n/a	n/a	n/a	849	8	11.45	n/a	n/a	n/a	n/a
4Q10	99.99%	309	0.35	1.1:1	n/a	n/a	n/a	574	8	3.27	n/a	n/a	n/a	n/a
1Q11	100.00%	390	0.50	1.3:1	n/a	n/a	n/a	971	8	1.17	n/a	n/a	n/a	n/a
2Q11	100.00%	453	0.75	1.7:1	n/a	n/a	n/a	839	8	0.52	n/a	n/a	n/a	n/a
3Q11	100.00%	567	1.00	1.8:1	n/a	n/a	n/a	1919	8	0.47	n/a	n/a	n/a	n/a
4Q11	100.00%	581	1.25	2.2:1	n/a	n/a	n/a	1418	8	0.43	n/a	n/a	n/a	n/a
1Q12	100.00%	561	1.50	2.7:1	n/a	n/a	n/a	743	16	0.35	n/a	n/a	n/a	n/a
2Q12	100.00%	553	1.75	3.2:1	n/a	n/a	n/a	809	16	0.30	n/a	n/a	n/a	n/a
3Q12	99.99%	567	2.00	3.5:1	n/a	n/a	n/a	559	16	0.28	n/a	n/a	n/a	n/a
4Q12	100.00%	474	2.25	4.7:1	n/a	n/a	n/a	617	16	0.26	n/a	n/a	n/a	n/a
1Q13	99.99%	508	2.50	4.9:1	n/a	n/a	n/a	607	16	0.69	n/a	n/a	n/a	n/a
2Q13	100.00%	575	2.50	4.3:1	n/a	n/a	n/a	744	16	0.59	n/a	n/a	1.02	n/a
3Q13	100.00%	458	2.75	6.0:1	116.2	275	2.4:1	547	16	0.40	n/a	n/a	0.65	n/a
4Q13	100.00%	516	3.00	5.8:1	120.7	300	2.5:1	634	16	0.40	n/a	n/a	0.65	n/a
1Q14	100.00%	565	n/a	n/a	121.1	300	2.5:1	710	16	0.45	n/a	n/a	0.90	n/a
2Q14	99.99%	559	n/a	n/a	131.7	300	2.3:1	833	16	0.44	n/a	n/a	0.76	n/a
3Q14	100.00%	476	n/a	n/a	121.1	325	2.7:1	596	16	0.45	n/a	n/a	0.88	n/a
4Q14	99.99%	517	n/a	n/a	141.8	325	2.3:1	1397	16	0.41	n/a	n/a	0.75	n/a
1Q15	100.00%	510	n/a	n/a	146.4	350	2.4:1	849	16	0.39	n/a	n/a	0.68	n/a
2Q15	100.00%	526	n/a	n/a	142.6	350	2.5:1	625	16	0.46	n/a	n/a	1.02	n/a
3Q15	100.00%	583	n/a	n/a	158.4	375	2.4:1	952	16	0.51	0.23	n/a	1.13	n/a
4Q15	99.99%	652	n/a	n/a	162.3	375	2.3:1	910	16	0.44	0.21	n/a	0.93	n/a
1Q16	100.00%	615	n/a	n/a	163.3	392	2.4:1	1338	16	0.49	0.22	0.15	1.08	3.89
2Q16	100.00%	618	n/a	n/a	168.4	400	2.4:1	1093	16	0.49	0.22	0.15	1.09	4.00
3Q16	100.00%	541	n/a	n/a	185.5	450	2.4:1	1027	16	0.47	0.21	0.15	0.97	3.86
4Q16	99.99%	785	n/a	n/a	210.8	450	2.1:1	1150	16	0.26	0.08	0.06	0.28	1.57
1Q17	100.00%	530	n/a	n/a	175.7	450	2.6:1	720	16	0.15	0.08	0.06	0.26	1.10
2Q17	100.00%	543	n/a	n/a	189.2	450	2.4:1	676	16	0.15	0.08	0.06	0.28	1.11
3Q17	100.00%	519	n/a	n/a	165.4	450	2.7:1	546	16	0.14	0.08	0.06	0.25	1.02
4Q17	100.00%	527	n/a	n/a	187.2	450	2.4:1	782	16	0.12	0.09	0.07	0.16	0.72
1Q18	100.00%	691	n/a	n/a	182.6	450	2.5:1	1571	16	0.13	0.08	0.07	0.18	0.86
2Q18	100.00%	660	n/a	n/a	195.5	450	2.3:1	985	16	0.13	0.08	0.07	0.17	0.86
3Q18	100.00%	790	n/a	n/a	232.6	450	1.9:1	684	16	0.13	0.09	0.07	0.18	0.81



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Trade Feed (Tape A&B)														
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 Transactions Per Day (millions)	Capacity Transactions Per Day (millions)	Average Latency (3)	Median Latency (3)	10th Percentile Latency	90th Percentile Latency	99th Percentile Latency	
1Q10	100.00%	49.6	50	1.0:1	n/a	n/a	n/a	36.8	200	6.46	n/a	n/a	n/a	n/a
2Q10	99.99%	42.9	50	1.2:1	n/a	n/a	n/a	55.5	200	6.17	n/a	n/a	n/a	n/a
3Q10	99.99%	42.1	60	1.4:1	n/a	n/a	n/a	38.3	200	5.73	n/a	n/a	n/a	n/a
4Q10	99.99%	48.4	75	1.5:1	n/a	n/a	n/a	30.2	200	3.24	n/a	n/a	n/a	n/a
1Q11	100.00%	57.2	100	1.7:1	n/a	n/a	n/a	36.9	200	1.96	n/a	n/a	n/a	n/a
2Q11	99.99%	78.2	150	1.9:1	n/a	n/a	n/a	31.6	200	1.25	n/a	n/a	n/a	n/a
3Q11	100.00%	77.8	200	2.6:1	n/a	n/a	n/a	61.6	200	0.80	n/a	n/a	n/a	n/a
4Q11	100.00%	67.5	250	3.7:1	n/a	n/a	n/a	44.8	200	0.73	n/a	n/a	n/a	n/a
1Q12	100.00%	57.2	300	5.2:1	n/a	n/a	n/a	26.9	1000	0.58	n/a	n/a	n/a	n/a
2Q12	100.00%	80.7	350	4.3:1	n/a	n/a	n/a	25.9	1000	0.37	n/a	n/a	n/a	n/a
3Q12	99.99%	72.4	400	5.5:1	n/a	n/a	n/a	25.5	1000	0.36	n/a	n/a	n/a	n/a
4Q12	100.00%	59.5	450	7.6:1	n/a	n/a	n/a	22.8	1000	0.32	n/a	n/a	n/a	n/a
1Q13	100.00%	67.7	500	7.4:1	n/a	n/a	n/a	22.2	1000	0.48	n/a	n/a	n/a	n/a
2Q13	100.00%	68.7	500	7.3:1	n/a	n/a	n/a	27.9	1000	0.38	n/a	n/a	0.50	n/a
3Q13	100.00%	70.8	550	7.8:1	21.4	55	2.6:1	25.0	1000	0.38	n/a	n/a	0.54	n/a
4Q13	100.00%	91.1	600	6.6:1	20.6	60	2.9:1	30.4	1000	0.42	n/a	n/a	0.53	n/a
1Q14	100.00%	111.8	n/a	n/a	21.8	60	2.8:1	36.5	1000	0.51	n/a	n/a	0.71	n/a
2Q14	99.99%	98.7	n/a	n/a	23.5	60	2.6:1	30.0	1000	0.51	n/a	n/a	0.66	n/a
3Q14	100.00%	81.7	n/a	n/a	22.7	65	2.9:1	29.2	1000	0.51	n/a	n/a	0.66	n/a
4Q14	99.99%	109.7	n/a	n/a	24.2	65	2.7:1	49.6	1000	0.45	n/a	n/a	0.60	n/a
1Q15	100.00%	85.5	n/a	n/a	22.1	70	3.2:1	34.6	1000	0.45	n/a	n/a	0.59	n/a
2Q15	100.00%	111.6	n/a	n/a	31.8	70	2.2:1	31.6	1000	0.34	n/a	n/a	0.43	n/a
3Q15	100.00%	79.6	n/a	n/a	27.1	75	2.8:1	56.0	1000	0.32	0.24	n/a	0.41	n/a
4Q15	100.00%	128.1	n/a	n/a	43.7	75	1.7:1	38.0	1000	0.31	0.24	n/a	0.41	n/a
1Q16	100.00%	123.0	n/a	n/a	42.4	86	2.0:1	49.8	1000	0.33	0.25	0.16	0.43	1.73
2Q16	100.00%	91.9	n/a	n/a	37.4	96	2.6:1	45.6	1000	0.34	0.24	0.19	0.45	1.73
3Q16	100.00%	98.2	n/a	n/a	41.5	105	2.5:1	33.8	1000	0.32	0.24	0.20	0.44	1.65
4Q16	100.00%	94.3	n/a	n/a	38.7	105	2.7:1	49.3	1000	0.25	0.16	0.13	0.31	1.41
1Q17	100.00%	121.8	n/a	n/a	45.4	105	2.3:1	32.9	1000	0.17	0.12	0.08	0.22	1.02
2Q17	100.00%	98.2	n/a	n/a	51.0	105	2.1:1	32.4	1000	0.15	0.11	0.08	0.21	0.85
3Q17	100.00%	88.3	n/a	n/a	46.9	105	2.2:1	29.2	1000	0.14	0.11	0.08	0.20	0.71
4Q17	100.00%	67.6	n/a	n/a	39.6	105	2.7:1	38.5	1000	0.15	0.12	0.09	0.21	0.71
1Q18	100.00%	68.0	n/a	n/a	35.8	105	2.9:1	57.3	1000	0.15	0.12	0.09	0.20	0.66
2Q18	100.00%	77.3	n/a	n/a	35.8	105	2.9:1	40.2	1000	0.15	0.12	0.09	0.20	0.72
3Q18	100.00%	77.4	n/a	n/a	31.0	105	3.4:1	40.1	1000	0.15	0.12	0.09	0.21	0.65

(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-milliseconds.

(3) Prior to 1Q13, latency was measured from the time a message received from a Participant was time-stamped by CTS/CQS, to the time that processing the message was completed.

Beginning 1Q13, 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.



Consolidated Tape Association

CTA Tape A & B Subscriber/Household Metrics

	Tape A				Tape B			
	Capped Non-Professional Subscribers (Quarter-End)	Quote Usage (Total; Excludes Capped Subscribers)	Professional Subscribers (Quarter-End)	Number Of Households (Quarter-End)	Capped Non-Professional Subscribers (Quarter-End)	Quote Usage (Total; Excludes Capped Subscribers)	Professional Subscribers (Quarter-End)	Number Of Households (Quarter-End)
1Q10	2,037,708	589,646,604	386,731	217,994,363	815,917	72,562,566	281,112	57,911,676
2Q10	2,491,536	697,583,987	387,665	226,255,293	880,937	84,503,788	285,796	58,632,676
3Q10	1,992,627	600,122,853	386,967	226,691,502	871,186	85,115,399	286,371	59,055,676
4Q10	2,291,468	582,541,126	383,134	228,919,217	912,168	107,691,602	289,799	59,358,676
1Q11	2,206,907	633,268,950	379,885	229,819,149	969,975	117,161,243	286,400	60,191,676
2Q11	2,226,995	613,937,178	381,824	230,338,538	983,821	123,924,506	286,431	60,706,676
3Q11	2,460,474	662,431,674	380,388	234,008,274	1,102,987	123,839,559	285,333	61,186,676
4Q11	2,203,675	599,535,234	377,213	234,889,328	1,014,313	130,216,175	282,297	61,297,676
1Q12	2,293,785	604,548,347	367,730	238,159,111	1,011,014	101,146,863	273,421	61,297,676
2Q12	2,303,800	626,207,954	365,597	242,932,648	1,095,169	145,405,727	271,012	61,297,676
3Q12	2,124,459	586,308,780	362,376	133,221,670	997,077	142,575,061	268,210	53,256,000
4Q12	2,103,416	584,361,961	337,993	136,057,542	1,054,311	137,868,070	249,518	53,256,000
1Q13	2,365,156	666,978,867	338,003	136,160,726	1,164,160	164,946,383	248,262	53,256,000
2Q13	2,530,269	721,154,414	335,007	135,857,138	1,234,644	177,903,793	252,238	53,256,000
3Q13	2,453,881	680,331,437	312,528	143,545,342	1,222,325	186,107,653	242,644	53,256,000
4Q13	2,717,211	709,027,277	312,562	143,088,657	1,251,657	227,386,864	236,425	53,256,000
1Q14	2,739,647	756,230,895	289,620	143,163,057	1,421,106	220,142,165	215,145	53,256,000
2Q14	2,566,637	695,548,296	282,755	145,377,725	1,328,856	207,952,904	201,484	53,256,000
3Q14	2,633,128	651,198,510	280,930	146,407,373	1,355,551	212,561,368	199,681	53,256,000
4Q14	2,669,941	672,153,175	280,218	145,776,063	1,404,440	222,534,074	200,863	53,256,000
1Q15	2,805,328	692,353,682	276,423	146,348,088	1,430,084	221,928,854	198,983	53,256,000
2Q15	2,695,514	639,698,333	268,472	150,706,873	1,399,034	193,106,875	193,877	53,256,000
3Q15	2,857,731	633,815,292	268,353	149,670,412	1,529,488	195,882,562	194,337	53,256,000
4Q15	2,593,460	641,075,577	270,380	149,157,480	1,389,834	214,879,531	207,350	53,256,000
1Q16	2,679,609	594,340,199	269,531	148,992,420	1,491,437	202,405,541	212,296	53,256,000
2Q16	2,731,832	620,868,669	283,033	150,359,705	1,528,320	210,715,719	227,579	53,256,000
3Q16	2,743,666	570,054,780	279,944	151,550,218	1,563,712	208,675,439	225,768	53,256,000
4Q16	2,691,960	515,179,425	277,443	149,042,548	1,567,124	183,453,430	224,582	53,256,000
1Q17	2,854,682	555,582,000	275,731	148,861,020	1,626,279	194,242,580	224,113	53,256,000
2Q17	2,725,430	551,150,194	277,423	150,074,827	1,544,540	187,310,259	225,773	53,256,000
3Q17	2,835,253	531,842,562	274,815	149,179,250	1,538,015	171,266,036	225,438	53,256,000
4Q17	3,042,936	554,593,781	275,319	144,061,866	1,718,697	157,995,482	227,378	53,256,000
1Q18	3,437,857	603,274,895	279,077	144,208,928	2,185,231	187,006,736	232,829	53,256,000
2Q18	3,273,808	541,346,119	278,911	145,401,019	2,019,033	180,043,162	230,661	53,256,000
3Q18	3,426,928	538,195,852	290,445	145,699,598	2,095,223	173,926,250	237,162	53,256,000

Definitions

- (1) Capped non-professionals includes data usage by those defined pursuant to the Non-Professional Subscriber policy (<http://www.nyxdata.com/Docs/Market-Data/Policies>) paying the flat per subscriber rate. Includes non-professionals paying on a per-quote basis that are capped at \$1.00/month.
- (2) Quotes include data usage for those professionals that choose to report on a per-quote-packet basis as well as non-professionals that are not capped at \$1.00/month.
- (3) Professional subscribers are deemed to be those that do not meet the criteria defined pursuant to the Non-Professional Subscriber policy paying on a per device basis.
- (4) Number of households provides an estimate of households reached based on vendor reporting of television broadcast data.
- (5) Effective September 1, 2013, Tape B Pro Devices include Bid Ask and Last Sale Services.