NP/NPRMPI RELATIVE PERFORMANCE

Timing Results, number of cores $1, \ldots, 4$

Due to small sample sizes some demos may not show appreciable gains with respect to increasing the number of cores. Where possible we have bumped up sample sizes in the hopes that the larger sample sizes will show expected scaling benefits.

(1) Note that the functions npconmode, npcmstest, and npqreg use actual datasets so these are restricted unless we wish to go with fully simulated data (an entry of $n = 0$ indicates the example uses a dataset)
(2) Note that currently the function npregiv is serial only hence no speedup (in fact overhead from message passing will slow it down as the number of cores increases)
(3) Note that currently the function npscoef and npglpreg are not fully MPI aware as the ridging occurs outside of a call to npksum() hence is processed serially and not in parallel

The table below presents Seconds with respect to the number of cores followed by the ratio (Secs(1) versus Secs(2) for instance). Note that an entry of $n = 0$ indicates the example uses a dataset hence the number of observations cannot be modified.

Function	n	Secs(1)	Secs(2)	Ratio	Function	n	Secs(1)	Secs(3)	Ratio
npcdensls	1000	342.6	182.4	0.53	npcdensls	1000	342.6	148.6	0.43
npcdensml	2500	110.0	55.2	0.50	npcdensml	2500	110.0	38.0	0.35
npcdistls	2000	91.1	47.4	0.52	npcdistls	2000	91.1	34.5	0.38
npcmstest	0	32.7	19.4	0.59	npcmstest	0	32.7	15.2	0.46
npconmode	0	29.8	15.0	0.50	npconmode	0	29.8	10.4	0.35
npcopula	2500	113.5	58.7	0.52	npcopula	2500	113.5	46.5	0.41
npdeneqtest	2500	103.7	53.0	0.51	npdeneqtest	2500	103.7	37.1	0.36
npdeptest	2500	130.2	66.6	0.51	npdeptest	2500	130.2	46.1	0.35
npglpreg	1000	459.5	259.0	0.56	npglpreg	1000	459.5	194.7	0.42
npindexich	5000	71.5	37.8	0.53	npindexich	5000	71.5	25.9	0.36
npindexks	5000	94.0	49.9	0.53	npindexks	5000	94.0	34.4	0.37
npplreg	1000	60.2	30.5	0.51	npplreg	1000	60.2	20.7	0.34
npqreg	0	34.2	18.2	0.53	npqreg	0	34.2	12.9	0.38
npregiv	2500	1021.3	787.1	0.77	npregiv	2500	1021.3	729.0	0.71
npreglcaic	5000	373.0	186.0	0.50	npreglcaic	5000	373.0	131.6	0.35
npreglcls	5000	368.0	184.9	0.50	npreglcls	5000	368.0	129.8	0.35
npregllaic	5000	298.2	154.3	0.52	npregllaic	5000	298.2	108.2	0.36
npreglls	5000	291.2	151.0	0.52	npreglls	5000	291.2	104.4	0.36
npscoef	10000	144.2	84.2	0.58	npscoef	10000	144.2	65.4	0.45
npsdeptest	1500	216.4	115.2	0.53	npsdeptest	1500	216.4	83.6	0.39
npsigtest	1000	203.9	110.6	0.54	npsigtest	1000	203.9	81.9	0.40
npsymtest	2500	114.1	60.5	0.53	npsymtest	2500	114.1	43.6	0.38
npudensls	10000	239.2	120.1	0.50	npudensls	10000	239.2	82.5	0.34
npudensml	10000	119.0	59.9	0.50	npudensml	10000	119.0	40.9	0.34
npudistcdf	10000	343.0	189.7	0.55	npudistcdf	10000	343.0	155.3	0.45
npunitest	5000	441.7	225.1	0.51	npunitest	5000	441.7	157.6	0.36

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Function	n	Secs(1)	Secs(4)	Ratio
npcdensls	1000	342.6	154.8	0.45
npcdensml	2500	110.0	38.2	0.35
npcdistls	2000	91.1	30.3	0.33
npcmstest	0	32.7	17.2	0.52
npconmode	0	29.8	10.5	0.35
npcopula	2500	113.5	43.1	0.38
npdeneqtest	2500	103.7	40.1	0.39
npdeptest	2500	130.2	49.1	0.38
npglpreg	1000	459.5	221.1	0.48
npindexich	5000	71.5	26.5	0.37
npindexks	5000	94.0	38.1	0.41
npplreg	1000	60.2	19.4	0.32
npqreg	0	34.2	11.2	0.33
npregiv	2500	1021.3	892.1	0.87
npreglcaic	5000	373.0	123.7	0.33
npreglcls	5000	368.0	124.5	0.34
npregllaic	5000	298.2	117.6	0.39
npreglls	5000	291.2	115.0	0.39
npscoef	10000	144.2	72.1	0.50
npsdeptest	1500	216.4	92.3	0.43
npsigtest	1000	203.9	100.1	0.49
npsymtest	2500	114.1	49.9	0.44
npudensls	10000	239.2	88.4	0.37
npudensml	10000	119.0	42.1	0.35
npudistcdf	10000	343.0	147.0	0.43
npunitest	5000	441.7	169.4	0.38