Appendix

Pprof output for 16 processors

Reading Profile files in profile.*

NODE 0; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	2	1,115	1	7	1115667	int main(int, char **) C
92.1	1,027	1,027	1	0	1027312	MPI Init()
6.4	0.249	71	1	23	71167	<pre>double powerMethod(double *, double *, int, int) C</pre>
6.4	68	70	10	40	7088	<pre>void matVec(double *, double *, int) C</pre>
1.1	12	12	1	2	12621	<pre>void generatematrix(double *, int) C</pre>
0.2	2	2	1	0	2505	MPI Finalize()
0.1	1	1	10	0	145	MPI_Gather()
0.1	0.61	0.61	10	0	61	MPI Bcast()
0.0	0.041	0.041	11	0	4	double norm2(double *, int) C
0.0	0.009	0.009	13	0	1	MPI Comm size()
0.0	0.004	0.004	13	0	0	MPI Comm rank()
0.0	0.004	0.004	1	0	4	void generatevec(double *, int) C

USER EVENTS Profile :NODE 0, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
10	5000	5000	5000		Message size for gather

NODE 1; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1.115	1	 7	1115490	int main(int. char **) C
92.1	1,027	1,027	1	Θ	1027362	MPI Init()
6.3	0.25	70	1	23	70733	<pre>double powerMethod(double *, double *, int, int) C</pre>
6.3	68	70	10	40	7045	<pre>void matVec(double *, double *, int) C</pre>
1.2	13	13	1	2	13063	<pre>void generatematrix(double *, int) C</pre>
0.2	2	2	1	Θ	2332	MPI_Finalize()
0.1	1	1	10	Θ	128	MPI_Bcast()
0.0	0.408	0.408	10	Θ	41	MPI_Gather()
0.0	0.036	0.036	11	Θ	3	double norm2(double *, int) C
0.0	0.008	0.008	13	0	1	MPI_Comm_size()
0.0	0.004	0.004	1	0	4	<pre>void generatevec(double *, int) C</pre>
0.0	0	0	13	Θ	Θ	MPI_Comm_rank()

USER EVENTS Profile :NODE 1, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 2; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,115	1	7		int main(int, char **) C
92.1	1,027	1,027	1	0	1027346	MPI_Init()
6.3	0.25	70	1	23	70504	<pre>double powerMethod(double *, double *, int, int) C</pre>
6.3	69	70	10	40	7022	<pre>void matVec(double *, double *, int) C</pre>
1.2	13	13	1	2	13232	<pre>void generatematrix(double *, int) C</pre>
0.2	2	2	1	Θ	2688	MPI_Finalize()
0.1	0.868	0.868	10	0	87	MPI Bcast()
0.0	0.309	0.309	10	0	31	MPI Gather()
0.0	0.037	0.037	11	0	3	double norm2(double *, int) C
0.0	0.007	0.007	13	0	1	MPI Comm size()
0.0	0.004	0.004	1	0	4	void generatevec(double *, int) C
0.0	0.001	0.001	13	0	0	MPI Comm rank()

USER EVENTS Profile :NODE 2, CONTEXT 0, THREAD 0

			MinValue				
	10 0	2E+04 0	2E+04 0	2E+04 0	0 0	Message si Message si	ze for broadcast ze for gather
NODE 3;		XT 0;THRE					
%Time	Exc	lusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0 92.1 6.3 6.3		1 1,027 0.245 69	1,115 1,027 70 70	1 1 1 1	7 0 23 40	1115479 1027346 70319 7003	<pre>int main(int, char **) C MPI_Init() double powerMethod(double *, double *, int, int) C void matVec(double *, double *, double *, int) C void generatematrix(double *, int) C MPI_Finalize() MPI_Gather() MPI_Gather() double norm2(double *, int) C MPI_Comm_size() void generatevec(double *, int) C MPI_Comm_rank()</pre>
1.2 0.2 0.1		13 2 0.648	13 2 0.648	1 1 10	2 0 0	13481 2545 65	<pre>void generatematrix(double *, int) C MPI_Finalize() MPI Bcast()</pre>
0.0		0.337	0.337 0.041	10 11	9	34	MPI_Gather() double norm2(double *, int) C
0.0 0.0		0.008 0.005 0.003	0.008 0.005 0.003	13 1 13	9 9	5 0	void generatevec(double *, int) C MPI_Comm_rank()
			MinValue				
	10 0	2E+04 0	2E+04 0	2E+04 0	0 0	Message si Message si	ze for broadcast ze for gather
FUNCTIO	N SUM	MARY (tot	al):				
%Time	Exc	lusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	
100.0		7 4,109	4,462 4,109	4 4	28	1115556 1027342	int main(int, char **) C MPI Init()
6.3 6.3 1.2		0.994 275 52	282 281 52	4 40 4	92 160 8	70681 7039 13099	<pre>int main(int, char **) C MPI_Init() double powerMethod(double *, double *, int, int) C void matVec(double *, double *, double *, int) C void generatematrix(double *, int) C MPI_Finalize() MPI_Bcast() MPI_Gather() double norm2(double *, int) C MPI_Comm_size() void generatevec(double *, int) C MPI_Comm_rank()</pre>
0.2 0.1 0.1		10 3 2	10 3 2	4 40 40	0 0 0	2518 85 63	<pre>MPI_Finalize() MPI_Bcast() MPI Gather()</pre>
0.0 0.0		0.155 0.032	0.155 0.032	44 52	0	1	<pre>double norm2(double *, int) C MPI_Comm_size() void gonoratovec(double *, int) C</pre>
0.0		0.008	0.008	52	0	9	MPI_Comm_rank()
		MARY (mea					
%Time	Exc	msec	Inclusive total msec			usec/call	
100.0 92.1		1 1,027	1,115 1,027	1 1	7 0	1115556 1027342	<pre>int main(int, char **) C MPI_Init()</pre>
6.3 6.3 1.2		0.248 68 13	70 70 13	1 10 1	23 40 2	7039	<pre>double powerMethod(double *, double *, int, int) C void matVec(double *, double *, double *, int) C void generatematrix(double *, int) C</pre>
0.2 0.1		2 0.853	2 0.853	1 10	9 9	2518 85	MPI_Finalize() MPI_Bcast()
$ \begin{array}{c} 0.1 \\ 0.0 \\ 0.0 \end{array} $		0.626 0.0387 0.008	0.626 0.0387 0.008	10 11 13	0 0 0	4	<pre>MPI_Gather() double norm2(double *, int) C MPI_Comm_size()</pre>
0.0 0.0	Θ	.00425 0.002	0.00425 0.002	1 13	0		<pre>void generatevec(double *, int) C MPI_Comm_rank()</pre>

Pprof output for 16 processors

Reading Profile files in profile.*

NODE 0; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive Nausec/call	ame
100.0	1	1,109	1	7	1109381 i	nt main(int, char **) C
96.7	1,073	1,073	1	Θ	1073154 MI	PI Init()
2.1	0.257	23	1	23	23181 do	$ou\overline{b}le powerMethod(double *, double *, int, int) C$
2.1	17	22	10	40	2288 v	oid matVec(double *, double *, double *, int) C
0.7	8	8	1	Θ	8135 MI	PI Finalize()
0.3	3	3	1	2	3441 v	oid generatematrix(double *, int) C
0.2	2	2	10	Θ		PI_Gather()
0.2	2	2	10	Θ	243 MI	PI Bcast()
0.0	0.039	0.039	11	Θ	4 do	ouble norm2(double *, int) C
0.0	0.012	0.012	1	Θ	12 v	oid generatevec(double *, int) C
0.0	0.005	0.005	13	Θ	0 MI	PI Comm size()
0.0	0.003	0.003	13	0	0 MI	PI_Comm_rank()

USER EVENTS Profile :NODE 0, CONTEXT 0, THREAD 0

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

10 2E+04 2E+04 2E+04 0 Message size for broadcast 10 1248 1248 1248 0 Message size for gather

NODE 1; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	1	1,104	1	7	1104604	int main(int, char **) C
97.1	1,072	1,072	1	Θ	1072019	MPI_Init()
2.1	0.256	23	1	23	23029	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2273	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	10	Θ	514	MPI_Bcast()
0.4	4	4	1	Θ	4548	MPI Finalize()
0.3	3	3	1	2	3424	void generatematrix(double *, int) C
0.0	0.161	0.161	10	0	16	MPI Gather()
0.0	0.039	0.039	11	Θ	4	double norm2(double *, int) C
0.0	0.015	0.015	1	Θ	15	<pre>void generatevec(double *, int) C</pre>
0.0	0.008	0.008	13	Θ	1	MPI Comm size()
0.0	0.003	0.003	13	Θ	Θ	MPI_Comm_rank()

USER EVENTS Profile :NODE 1, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 2; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,103	1	7	1103953	int main(int, char **) C
97.0	1,071	1,071	1	Θ	1071366	MPI_Init()
2.1	0.257	23	1	23	23030	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2273	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	10	0	511	MPI Bcast()
0.4	4	4	1	0	4669	MPI_Finalize()
0.3	3	3	1	2	3428	<pre>void generatematrix(double *, int) C</pre>
0.0	0.146	0.146	10	Θ	15	MPI Gather()
0.0	0.04	0.04	11	0	4	double norm2(double *, int) C
0.0	0.016	0.016	1	0	16	<pre>void generatevec(double *, int) C</pre>
0.0	0.012	0.012	13	0	1	MPI_Comm_rank()
0.0	0.006	0.006	13	Θ	0	MPI_Comm_size()

USER EVENTS Profile :NODE 2, CONTEXT 0, THREAD 0

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

Numbamptes maxvatue minvatue meanvatue Std. Dev. Event Name

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10
                                                      0 Message size for broadcast
                                                    0 Message size for gather
NODE 3; CONTEXT 0; THREAD 0:
       Exclusive Inclusive #Call #Subrs Inclusive Name
%Time
            msec total msec
                                                          usec/call
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                                     1
1
1
100.0
                          1,103
                                                   7
                                                            1103833 int main(int, char **) C
 97.1
            1,071
                          1,071
                                                       0
                                                            1071370 MPI_Init()
                                                            23032 double powerMethod(double *, double *, int, int) C 2273 void matVec(double *, double *, double *, int) C
 2.1
             0.259
                          23
             17
  2.1
                             22
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                                                            22/3 VOID marvectuousce , doubte , 504 MPI_Bcast()
4730 MPI_Finalize()
3414 void generatematrix(double *, int) C
12 MPI_Gather()
3 double norm2(double *, int) C
              5
4
3
                             5
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                                        10
                           4
                                        1
  0.4
  0.3
           0.118
0.038
                      0.118
0.038
                                         10
  0.0
                                     10
11
  0.0
                                                          14 void generatevec(double *, int) C
0 MPI_Comm_size()
0 MPI_Comm_rank()
            0.014
                        0.014
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  0.0
            0.006
                         0.006
                                          13
  0.0
           0.002
                          0.002
USER EVENTS Profile :NODE 3, CONTEXT 0, THREAD 0
NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name
______
                           2E+04
            2E+04
                                       2E+04
       10
                                                   0 Message size for broadcast
                                                     0 Message size for gather
                 0
                            0
                                         0
         0
```

|--|

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,103	1	7	1103954	int main(int, char **) C
97.0	1,071	1,071	1	0	1071374	MPI Init()
2.1	0.247	23	1	23	23014	double powerMethod(double *, double *, int, int) C
2.1	17	22	10	40	2273	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	10	0	516	MPI_Bcast()
0.4	4	4	1	0	4605	MPI Finalize()
0.3	3	3	1	2	3467	void generatematrix(double *, int) C
0.0	0.11	0.11	10	0	11	MPI_Gather()
0.0	0.038	0.038	11	0	3	double norm2(double *, int) C
0.0	0.012	0.012	1	0	12	<pre>void generatevec(double *, int) C</pre>
0.0	0.006	0.006	13	0	0	MPI_Comm_size()
0.0	0.002	0.002	13	Θ	Θ	MPI_Comm_rank()

USER EVENTS Profile :NODE 4, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 5; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	1 1,070	1,103 1,070	1 1	7 0		int main(int, char **) C MPI Init()
2.1	0.253	22	1	23	22907	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2262	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	1	Θ	5036	MPI_Finalize()
0.4	4	4	10	Θ	492	MPI_Bcast()
0.3	3	3	1	2	3473	<pre>void generatematrix(double *, int) C</pre>
0.0	0.11	0.11	10	0	11	MPI_Gather()
0.0	0.038	0.038	11	0	3	double norm2(double *, int) C
0.0	0.014	0.014	1	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.007	0.007	13	0	1	MPI Comm size()
0.0	0.005	0.005	13	0	0	MPI_Comm_rank()

USER EVENTS Profile :NODE 5, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

.....

NODE 6; CONTEXT 0; THREAD 0:

%Time	Exclusive	Inclusive	#Call	#Subrs	Inclusive Name	

7 I TIIIC	msec	total msec	#Catt	#30013	usec/call	
100.0	1	1,101	1	7	1101804 int main(int, char **) C	
97.1	1,069	1,069	1	Θ	1069359 MPI_Init()	
2.1	0.247	22	1	23	22967 double powerMethod(double *, double >	', int, int) C
2.1	17	22	10	40	2268 void matVec(double *, double *, doubl	.e *, int) C
0.5	4	4	10	0	500 MPI Bcast()	
0.4	4	4	1	0	4449 MPI_Finalize()	
0.3	3	3	1	2	3501 void generatematrix(double *, int) C	
0.0	0.117	0.117	10	0	12 MPI_Gather()	
0.0	0.04	0.04	11	0	4 double norm2(double $*$, int) C	
0.0	0.02	0.02	1	0	20 void generatevec(double *, int) C	
0.0	0.006	0.006	13	0	<pre>0 MPI_Comm_size()</pre>	
0.0	0.005	0.005	13	0	0 MPI Comm rank()	

USER EVENTS Profile :NODE 6, CONTEXT 0, THREAD 0

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

10 2E+04 2E+04 2E+04 0 Message size for broadcast 0 0 0 0 0 Message size for gather

NODE 7; CONTEXT 0; THREAD 0:

%Time Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call

	IIISEC	totat msec			usec/catt	
100.0	1	1,108	1	7	1108454	int main(int, char **) C
96.5	1,069	1,069	1	0	1069599	MPI Init()
2.1	0.25	23	1	23	23130	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2284	<pre>void matVec(double *, double *, int) C</pre>
1.0	10	10	1	0	10871	MPI_Finalize()
0.5	5	5	10	0	532	MPI Bcast()
0.3	3	3	1	2	3505	<pre>void generatematrix(double *, int) C</pre>
0.0	0.086	0.086	10	0	9	MPI Gather()
0.0	0.035	0.035	11	0	3	double norm2(double *, int) C
0.0	0.014	0.014	1	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.005	0.005	13	0	0	MPI Comm size()
0.0	0.003	0.003	13	Θ	0	MPI_Comm_rank()

USER EVENTS Profile :NODE 7, CONTEXT 0, THREAD 0

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

10 2E+04 2E+04 0 Message size for broadcast 0 0 0 0 Message size for gather

NODE 8; CONTEXT 0; THREAD 0:

%Time Exclusive Inclusive #Call #Subrs Inclusive Name

%IIMe	msec	total msec	#Call	#SUDI'S	usec/call	name
100.0	1	1,090	1	7	1090861	int main(int, char **) C
97.0	1,057	1,057	1	Θ	1057941	MPI Init()
2.1	0.267	22	1	23	22966	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2266	<pre>void matVec(double *, double *, int) C</pre>
0.5	4	4	1	0	4989	MPI_Finalize()
0.4	4	4	10	0	459	MPI_Bcast()
0.3	3	3	1	2	3524	<pre>void generatematrix(double *, int) C</pre>
0.0	0.206	0.206	10	0	21	MPI_Gather()
0.0	0.037	0.037	11	0	3	double norm2(double *, int) C
0.0	0.014	0.014	1	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.005	0.005	13	0	Θ	MPI_Comm_size()
0.0	0.003	0.003	13	Θ	Θ	MPT Comm rank()

USER EVENTS Profile :NODE 8, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

0 0 0 0 Tessage Size for gather

NODE 9; CONTEXT 0; THREAD 0:

Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
1	1,090	1	7	1090874	int main(int, char **) C
1,057	1,057	1	0	1057936	MPI Init()
0.249	22	1	23	22947	<pre>double powerMethod(double *, double *, int, int) C</pre>
17	22	10	40	2266	<pre>void matVec(double *, double *, int) C</pre>
4	4	1	Θ	4969	MPI_Finalize()
4	4	10	Θ	491	MPI_Bcast()
3	3	1	2	3513	void generatematrix(double *, int) C
0.322	0.322	10	Θ	32	MPI_Gather()
0.037	0.037	11	Θ	3	double norm2(double *, int) C
0.013	0.013	1	Θ	13	<pre>void generatevec(double *, int) C</pre>
0.004	0.004	13	Θ	0	MPI_Comm_rank()
0.003	0.003	13	Θ	0	MPI_Comm_size()
	msec 1 1,057 0.249 17 4 4 3 0.322 0.037 0.013 0.004	msec total msec 1 1,090 1,057 1,057 0.249 22 17 22 4 4 4 4 3 3 0.322 0.322 0.037 0.037 0.013 0.013 0.004 0.004	msec total msec 1 1,090 1 1,057 1,057 1 0.249 22 1 17 22 10 4 4 1 4 4 10 3 3 1 0.322 0.322 10 0.037 0.037 11 0.013 0.013 1 0.004 0.004 13	msec total msec 1 1,090 1 7 1,057 1,057 1 0 0.249 22 1 23 17 22 10 40 4 4 1 0 0 3 3 3 1 2 0.322 0.322 10 0 0.037 0.037 11 0 0.013 0.013 1 0 0.004 0.004 13 0	msec total msec usec/call 1 1,090 1 7 1090874 1,057 1,057 1 0 1057936 0.249 22 1 23 22947 17 22 10 40 2266 4 4 1 0 4969 4 4 10 0 491 3 3 1 2 3513 0.322 0.322 10 0 32 0.037 0.037 11 0 3 0.013 0.013 1 0 13 0.004 0.004 13 0 0

USER EVENTS Profile :NODE 9, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 10; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,090	1	7	1090315	int main(int, char **) C
97.0	1,057	1,057	1	Θ	1057399	MPI Init()
2.1	0.247	22	1	23	22901	double powerMethod(double *, double *, int, int) C
2.1	17	22	10	40	2261	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	1	0	5052	MPI Finalize()
0.5	4	4	10	0	491	MPI Bcast()
0.3	3	3	1	2	3573	void generatematrix(double *, int) C
0.0	0.255	0.255	10	0	26	MPI_Gather()
0.0	0.039	0.039	11	Θ	4	double norm2(double *, int) C
0.0	0.009	0.009	1	Θ	9	<pre>void generatevec(double *, int) C</pre>
0.0	0.005	0.005	13	0	Θ	MPI Comm size()
0.0	0.004	0.004	13	Θ	Θ	MPI_Comm_rank()

USER EVENTS Profile :NODE 10, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 11;CONTEXT 0;THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive Name usec/call</pre>
100.0	1	1,096	1	7	1096643 int main(int, char **) C
96.4	1,057	1,057	1	0	1057706 MPI Init()
2.1	0.255	22	1	23	22931 dou \overline{b} le powerMethod(double *, double *, int, int) C
2.1	17	22	10	40	2264 void matVec(double *, double *, double *, int) C
1.0	11	11	1	0	11130 MPI Finalize()
0.4	4	4	10	Θ	482 MPI Bcast()
0.3	3	3	1	2	3528 void generatematrix(double *, int) C
0.0	0.244	0.244	10	Θ	24 MPI Gather()
0.0	0.037	0.037	11	Θ	3 double norm2(double *, int) C
0.0	0.012	0.012	1	Θ	12 void generatevec(double *, int) C
0.0	0.004	0.004	13	Θ	0 MPI Comm size()
0.0	0.001	0.001	13	0	0 MPI_Comm_rank()

USER EVENTS Profile :NODE 11, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 12; CONTEXT 0; THREAD 0:

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%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,090	1	7		int main(int, char **) C
97.0	1,057	1,057	1	0	1057745	MPI_Init()
2.1	0.251	22	1	23	22882	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2259	<pre>void matVec(double *, double *, int) C</pre>
0.5	4	4	1	0	4909	MPI Finalize()
0.4	4	4	10	0	481	MPI_Bcast()
0.3	3	3	1	2	3567	void generatematrix(double *, int) C
0.0	0.236	0.236	10	0	24	MPI Gather()
0.0	0.036	0.036	11	0	3	double norm2(double *, int) C
0.0	0.014	0.014	1	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.006	0.006	13	0	Θ	MPI Comm size()
0.0	0.003	0.003	13	0	0	MPI_Comm_rank()
USER EVE	ENTS Profile	:NODE 12, CON	TEXT 0, THR	EAD 0		
NumSamp1	Les MaxValı	ue MinValue	MeanValue	Std. Dev.	Event Name	
	10 2E+6	94 2E+04	2F+04	0	Message siz	e for broadcast
	0	0 0	0			e for gather

NODE 13; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	1	1,089	1	7		int main(int, char **) C
97.0	1,056	1,056	1	0	1056270	MPI_Init()
2.1	0.247	22	1	23	22860	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2257	<pre>void matVec(double *, double *, int) C</pre>
0.5	5	5	1	Θ	5299	MPI_Finalize()
0.4	4	4	10	0	481	MPI_Bcast()
0.3	3	3	1	2	3613	<pre>void generatematrix(double *, int) C</pre>
0.0	0.181	0.181	10	0		<pre>MPI_Gather()</pre>
0.0	0.04	0.04	11	0	4	double norm2(double *, int) C
0.0	0.012	0.012	1	0	12	<pre>void generatevec(double *, int) C</pre>
0.0	0.007	0.007	13	0	1	MPI_Comm_rank()
0.0	0.003	0.003	13	0	0	MPI_Comm_size()

USER EVENTS Profile :NODE 13, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 14; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
	msec	totat msec			usec/carr	
100.0	1	1,089	1	7	1089593	int main(int, char **) C
97.1	1,058	1,058	1	0	1058327	MPI_Init()
1.9	0.253	21	1	23	21060	double powerMethod(double *, double *, int, int) C
1.9	17	20	10	40	2077	<pre>void matVec(double *, double *, int) C</pre>
0.5	4	4	1	Θ	4975	MPI_Finalize()
0.3	3	3	1	2	3768	<pre>void generatematrix(double *, int) C</pre>
0.3	3	3	10	0	327	MPI Bcast()
0.0	0.212	0.212	10	0	21	MPI Gather()
0.0	0.036	0.036	11	0	3	double norm2(double *, int) C
0.0	0.017	0.017	1	0	17	<pre>void generatevec(double *, int) C</pre>
0.0	0.004	0.004	13	0	0	MPI Comm size()
0.0	0.003	0.003	13	Θ	Θ	MPI_Comm_rank()

USER EVENTS Profile :NODE 14, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

NODE 15; CONTEXT 0; THREAD 0:

%Time Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call

100.0	1	1,097	1	7	1097394	<pre>int main(int, char **) C</pre>
96.4	1,057	1,057	1	0	1057727	MPI_Init()
2.1	0.249	22	1	23	22822	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2253	<pre>void matVec(double *, double *, int) C</pre>
1.1	11	11	1	0	11736	MPI_Finalize()
0.4	4	4	10	0	493	MPI_Bcast()
0.3	3	3	1	2	3662	<pre>void generatematrix(double *, int) C</pre>
0.0	0.181	0.181	10	0	18	MPI_Gather()
0.0	0.037	0.037	11	0	3	double norm2(double *, int) C
0.0	0.019	0.019	1	0	19	<pre>void generatevec(double *, int) C</pre>
0.0	0.006	0.006	13	0	0	MPI_Comm_rank()
0.0	0.005	0.005	13	Θ	0	MPI_Comm_size()

USER EVENTS Profile :NODE 15, CONTEXT 0, THREAD 0

NumSamples	MaxValue	MinValue	MeanValue	Std. Dev.	Event Name
10	2E+04	2E+04	2E+04		Message size for broadcast
0	0	0	0		Message size for gather

FUNCTION SUMMARY (total):

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	22	17,574	16	112		int main(int, char **) C
96.9	17,029	17,029	16	0	1064342	MPI_Init()
2.1	4	365	16	368	22854	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	280	360	160	640	2256	<pre>void matVec(double *, double *, int) C</pre>
0.6	100	100	16	0	6256	MPI_Finalize()
0.4	75	75	160	0	470	MPI_Bcast()
0.3	56	56	16	32	3525	void generatematrix(double *, int) C
0.0	5	5	160	0	33	MPI_Gather()
0.0	0.606	0.606	176	0	3	double norm2(double *, int) C
0.0	0.227	0.227	16	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.084	0.084	208	0	Θ	MPI Comm size()
0.0	0.066	0.066	208	Θ	Θ	MPI_Comm_rank()

FUNCTION SUMMARY (mean):

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	1	1,098	1	7	1098413	int main(int, char **) C
96.9	1,064	1,064	1	Θ	1064342	MPI Init()
2.1	0.253	22	1	23	22854	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2256	<pre>void matVec(double *, double *, int) C</pre>
0.6	6	6	1	0	6256	MPI Finalize()
0.4	4	4	10	0	470	MPI Bcast()
0.3	3	3	1	2	3525	<pre>void generatematrix(double *, int) C</pre>
0.0	0.331	0.331	10	0	33	MPI_Gather()
0.0	0.0379	0.0379	11	0	3	double norm2(double *, int) C
0.0	0.0142	0.0142	1	0	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.00525	0.00525	13	0	0	MPI Comm size()
0.0	0.00413	0.00413	13	0	0	MPI Comm rank()