NODE 0; CONTEXT 0; THREAD 0:

%Time	Exclusive	Inclusive	#Call	#Subrs	Inclusive Name

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive Name usec/call	
100.0	1	1,109	1	7	1109381 int main(int, char **) C	
96.7	1,073	1,073	1	9	1073154 MPI_Init()	_
2.1	0.257	23	1	23		
2.1	17	22	10	40	2288 void matVec(double *, double *, double *, int) C	
0.7	8	8	1	Θ	8135 MPI_Finalize()	
0.3	3	3	1	2	3441 void generatematrix(double *, int) C	
0.2	2	2	10	0	261 MPI_Gather()	
0.2	2	2	10	0	243 MPI Bcast()	
0.0	0.039	0.039	11	0	4 double norm2(double *, int) C	
0.0	0.012	0.012	1	0	<pre>12 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	0	0 MPI_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		Message size for broadcast
10	1248	1248	1248		Message size for gather

NODE 1; CONTEXT 0; THREAD 0:

Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call %Time 1,10-. 1,072 1,104 1 7 1,072 1 0 23 1 23 100.0 1104604 int main(int, char **) C 97.1 1,072 1072019 MPI_Init() 0 23 40 0 0 2 0 0 0.256 23 23029 double powerMethod(double *, double *, int, int) C 2.1 1 17 2273 void matVec(double *, double *, double *, int) C 2.1 22 10 514 MPI_Bcast() 4548 MPI_Finalize() 5 0.5 4 5 10 5 4 1 0.4 3424 voi \overline{d} generatematrix(double *, int) C 0.3 3 1 16 MPI_Gather() 0.161 0.161 10 0.0 4 double norm2(double *, int) C 0.039 0.0 0.039 11 4 double normz(gouble *, int) C 15 void generatevec(double *, int) C 1 MPI_Comm_size() 0 MPI_Comm_rank() 0.015 0.0 0.015 0 0 0.0 0.008 0.008 0.0 0.003 0.003 13

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	void generatematrix(double *, int) C
0.0	0.146	0.146	10	0	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	0	Θ	MPI_Comm_size()

USER EVENTS Profile :NODE 2, 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 3; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0 97.1 2.1 2.1 0.5 0.4 0.3 0.0 0.0 0.0	1 1,071 0.259 17 5 4 3 0.118 0.038 0.014 0.006	1,103 1,071 23 22 5 4 3 0.118 0.038 0.014 0.006 0.002	1 1 10 10 10 1 1 10 11 11 13	7 0 23 40 0 0 0 0 0	1071370 23032 2273 504 4730 3414 12 3 14	<pre>int main(int, char **) C MPI_Init() double powerMethod(double *, double *, int, int) C void matVec(double *, double *, double *, int) C MPI_Bcast() MPI_Finalize() void generatematrix(double *, int) C MPI_oather() double norm2(double *, int) C void generatevec(double *, int) C MPI_Comm_size() MPI_Comm_rank()</pre>

USER EVENTS Profile :NODE 3, 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 4; CONTEXT 0; THREAD 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	Θ	0	MPI_Comm_size()
0.0	0.002	0.002	13	Θ	0	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	1,103	1	 7	1103057	int main(int, char **) C
97.0	1,070	1,070	1	0	1070183	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		<pre>void matVec(double *, 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	Θ	11	MPI Gather()
0.0	0.038	0.038	11	Θ	3	double norm2(double *, int) C
0.0	0.014	0.014	1	Θ	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.007	0.007	13	Θ	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 msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,101	1	7	1101804	int main(int, char **) C
97.1	1,069	1,069	1	0	1069359	MPI Init()
2.1	0.247	22	1	23	22967	<pre>double powerMethod(double *, double *, int, int) C</pre>
2.1	17	22	10	40	2268	<pre>void matVec(double *, double *, int) C</pre>
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	<pre>void generatematrix(double *, int) C</pre>
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	<pre>void generatevec(double *, int) C</pre>
0.0	0.006	0.006	13	0	Θ	MPI Comm size()
0.0	0.005	0.005	13	0	Θ	MPI_Comm_rank()
USER EVI	ENTS Profile	:NODE 6, CONTE	XT 0, THREAD	0 		

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

NODE 7; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,108	1	7	1108454	int main(int, char **) C
96.5	1,069	1,069	1	Θ	1069599	MPI_Init()
2.1	0.25	23	1	23	23130	double powerMethod(double *, double *, int, int) C
2.1	17	22	10	40	2284	<pre>void matVec(double *, double *, int) C</pre>
1.0	10	10	1	Θ	10871	MPI_Finalize()
0.5	5	5	10	Θ	532	MPI Bcast()
0.3	3	3	1	2	3505	<pre>void generatematrix(double *, int) C</pre>
0.0	0.086	0.086	10	Θ	9	MPI_Gather()
0.0	0.035	0.035	11	Θ	3	$dou\overline{b}le norm2(double *, int) C$
0.0	0.014	0.014	1	Θ	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.005	0.005	13	Θ	Θ	MPI Comm size()
0.0	0.003	0.003	13	Θ	Θ	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 2E+04 0 Message size for broadcast 0 0 0 0 Message size for gather

NODE 8; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	<pre>Inclusive usec/call</pre>	Name
100.0	1	1,090	1	7	1090861	int main(int, char **) C
97.0	1,057	1,057	1	0	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 *, double *, int) C</pre>
0.5	4	4	1	Θ	4989	MPI_Finalize()
0.4	4	4	10	Θ	459	MPI_Bcast()
0.3	3	3	1	2	3524	<pre>void generatematrix(double *, int) C</pre>
0.0	0.206	0.206	10	Θ	21	MPI_Gather()
0.0	0.037	0.037	11	Θ	3	double norm2(double *, int) C
0.0	0.014	0.014	1	Θ	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.005	0.005	13	Θ	0	MPI_Comm_size()
0.0	0.003	0.003	13	0	0	MPI_Comm_rank()

USER EVENTS Profile :NODE 8, 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 Message size for gather

NODE 9; CONTEXT 0; THREAD 0:

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

```
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 double powerMethod(double
17 22 10 40 2266 void matVec(double *, dou
4 4 1 0 4969 MPI_Finalize()
4 4 10 0 491 MPI_Bcast()
3 3 1 2 3513 void generatematrix(double
0.322 0.322 10 0 32 MPI_Gather()
0.037 0.037 11 0 3 double norm2(double *, in
0.013 0.013 1 0 13 void generatevec(double *
0.004 0.004 13 0 MPI_Comm_rank()
0.003 0.003 13 0 MPI_Comm_size()
100.0
  97.0
                                                                                                                       22947 double powerMethod(double *, double *, int, int) C 2266 void matVec(double *, double *, double *, int) C
   2.1
    2.1
   0.5
   0.5
                                                                                                                            3513 void generatematrix(double *, int) C
    0.3
    0.0
    0.0
                                                                                                                                 3 double norm2(double *, int) C
                                                                                                                           3 double normz(uouble *, int, C
13 void generatevec(double *, int) C
0 MPI_Comm_rank()
0 MPI_Comm_size()
   0.0
                                        0.004
0.003
                       0.003
USER EVENTS Profile :NODE 9, CONTEXT 0, THREAD 0
NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name
______
               NODE 10; CONTEXT 0; THREAD 0:
%Time Exclusive Inclusive #Call #Subrs Inclusive Name
msec total msec usec/call
                1 1,090 1 7 1090315 int main(int, char **) C
1,057 1,057 1 0 1057399 MPI_Init()
0.247 22 1 23 22901 double powerMethod(double
17 22 10 40 2261 void matVec(double *, dou
5 5 1 0 5052 MPI_Finalize()
4 4 10 0 491 MPI_Bcast()
3 3 1 2 3573 void generatematrix(double
0.255 0.255 10 0 26 MPI_Gather()
0.039 0.039 11 0 4 double norm2(double *, in
0.009 0.009 1 0 9 void generatevec(double *
0.005 0.005 13 0 0 MPI_Comm_size()
0.004 0.004 13 0 0 MPI_Comm_rank()
100.0
  97.0
                                                                                                                       22901 double powerMethod(double *, double *, int, int) C
   2.1
   2.1
                                                                                                                            2261 void matVec(double *, double *, double *, int) C
   0.5
    0.5
                                                                                                                        3573 void generatematrix(double *, int) C
    0.3
                                                                                                                           26 MPI_Gather()
4 double norm2(double *, int) C
9 void generatevec(double *, int) C
0 MPI_Comm_size()
0 MPI_Comm_rank()
    0.0
    0.0
    0.0
    0.0
    0.0
USER EVENTS Profile :NODE 10, CONTEXT 0, THREAD 0
NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name
              NODE 11; CONTEXT 0; THREAD 0:
%Time Exclusive Inclusive #Call #Subrs Inclusive Name
msec total msec usec/call

        msec
        total msec
        usec/call

        1
        1,096
        1
        7
        1096643 int main(int, char **) C

        1,057
        1,057
        1
        0
        1057706 MPI_Init()

        0.255
        22
        1
        23
        22931 double powerMethod(double to the powerMethod (double to the powerM
100.0
 96.4
                                                                                                                    22931 double powerMethod(double *, double *, int, int) C
   2.1
                                                                                                                            2264 void matVec(double *, double *, double *, int) C
    2.1
   1.0
    0.4
                                                                                                                      482 MPI_Bcast()
3528 void generatematrix(double *, int) C
    0.3
                                                                                                                         24 MPI_Gather()
3 double norm2(double *, int) C
    0.0
    0.0
                                                                                                                  3 double normz(uouble *, int) C
12 void generatevec(double *, int) C
0 MPI_Comm_size()
0 MPI_Comm_rank()
    0.0
    0.0
    0.0
USER EVENTS Profile :NODE 11, CONTEXT 0, THREAD 0
NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name
------
              0
                                                     0
                                                                                                         0 Message size for gather
NODE 12; CONTEXT 0; THREAD 0:
 %Time Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call
              1 1,090 1 7 1090713 int main(int, char **) C
100.0
```

```
1,057
                          1,057
                                                                 1057745 MPI Init()
            0.251
                                                                   22882 double powerMethod(double *, double *, int, int) C
                              22
            17
                                                                    2259 void matVec(double *, double *, double *, int) C
2.1
                              22
                                          10
                                                                    4909 MPI_Finalize()
481 MPI_Bcast()
                4
                               4
                                                           0
0.5
                                             1
                                           10
                                                                    3567 void generatematrix(double *, int) C
                3
                               3
0.3
                                             1
                                                                  24 MPI_Gather()
                      0.236
0.036
           0.236
                                            10
0.0
                                                                       3 double norm2(double *, int) C
           0.036
                                           11
0.0
                                                                   3 double normz(double ", int, c
14 void generatevec(double *, int) C
0 MPI_Comm_size()
0 MPI_Comm_rank()
0.0
           0.014
                           0.014
                                             1
                     0.006
0.003
0.0
           0.006
                           0.006
                                            13
          0.003
                                          13
0.0
```

USER EVENTS Profile :NODE 12, CONTEXT 0, THREAD 0

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

0

NODE 13; CONTEXT 0; THREAD 0:

Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call %Time Exclusive 1 1,089 1 7 1089178 int main(int, char **) C
1,056 1,056 1 0 1056270 MPI_Init()
0.247 22 1 23 22860 double powerMethod(double
17 22 10 40 2257 void matVec(double *, dou
5 5 1 0 5299 MPI_Finalize()
4 4 10 0 481 MPI_Bcast()
3 3 1 2 3613 void generatematrix(double 1 1,056 0.247 100.0 97.0 22860 double powerMethod(double *, double *, int, int) C 2.1
 v.24/
 22
 1
 23

 17
 22
 10
 40

 5
 5
 1
 0

 4
 4
 10
 0

 3
 3
 1
 2

 0.181
 0.181
 10
 0

 0.04
 0.04
 11
 0

 0.012
 0.012
 1
 0

 0.007
 0.007
 13
 0

 0.003
 0.003
 13
 0
 2257 void matVec(double *, double *, double *, int) C
5299 MPI_Finalize()
481 MPI_Bcast()
3613 void generatematrix(double *, int) C 2.1 0.5 0.4 0.3 18 MPI_Gather()
4 double norm2(double *, int) C
12 void generatevec(double *, int) C
14 MPI_Comm_rank()
0 MPI_Comm_size() 0.0 0.0 0.0 0.0 0.0

USER EVENTS Profile :NODE 13, 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 14; CONTEXT 0; THREAD 0:

%Time Exclusive Inclusive #Call #Subrs Inclusive Name msec total msec usec/call 1 1,089 1 7 1089593 int main(int, char **) C
1,058 1,058 1 0 1058327 MPI_Init()
0.253 21 1 23 21060 double powerMethod(double *, double *
17 20 10 40 2077 void matVec(double *, double *, double 4 4 1 0 4975 MPI_Finalize()
3 3 1 2 3768 void generatematrix(double *, int) C
3 3 10 0 327 MPI_Bcast()
0.212 0.212 10 0 21 MPI_Gather()
0.036 0.036 11 0 3 double norm2(double *, int) C
0.017 0.017 1 0 17 void generatewec(double *, int) C
0.004 0.004 13 0 0 MPI_Comm_size()
0.003 0.003 13 0 0 MPI_Comm_rank() -----1 1,058 100.0 97.1 21060 double powerMethod(double *, double *, int, int) C 1.9 2077 void matVec(double *, double *, double *, int) C 1.9 0.5 0.3 0.3 0.0 0.0 0.0 0.0 0.0

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

NumSamples MaxValue MinValue MeanValue Std. Dev. Event Name

NODE 15; CONTEXT 0; THREAD 0:

%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive Name usec/call
100.0 96.4	1 1.057	1,097 1,057	1	7	1097394 int main(int, char **) C 1057727 MPI Init()
2.1	0.249	22	1	23	22822 double powerMethod(double *, double *, int, int) C

```
2253 void matVec(double *, double *, double *, int) C
                                                                                               11736 MPI_Finalize()
493 MPI_Bcast()
1.1
                      11
                                           11
0.4
                                           4
                                                              10
                      4
                                                                                                493 MPI Bcast()
3662 void generatematrix(double *, int) C
18 MPI_Gather()
3 double norm2(double *, int) C
19 void generatevec(double *, int) C
0 MPI_Comm_rank()
0 MPI_Comm_size()
                                             3
0.3
                       3
                                                                1
                                                                                    2
                 0.181
                                      0.181
                                                              10
0.0
                                                                                    0
                 0.037
                                      0.037
0.0
                                                                                    0
                                                              11
                 0.019
0.0
                                      0.019
                                                                                    0
                 0.006
                                      0.006
0.0
                                                               13
0.0
                 0.005
                                      0.005
                                                              13
                                                                                    0
```

USER EVENTS Profile :NODE 15, 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

FUNCTION SUMMARY (total):

%T	Γime	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
16	90.0	22	17,574	16	112	1098413	int main(int, char **) C
g	96.9	17,029	17,029	16	Θ	1064342	MPI_Init()
	2.1	4	365	16	368	22854	double powerMethod(double *, double *, int, int) C
	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	<pre>void generatematrix(double *, int) C</pre>
	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	MPT Comm rank()

FUNCTION SUMMARY (mean):

	•	•				
%Time	Exclusive msec	Inclusive total msec	#Call	#Subrs	Inclusive usec/call	Name
100.0	1	1,098	1	7		int main(int, char **) C
96.9	1,064	1,064	1	0	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	Θ	6256	MPI_Finalize()
0.4	4	4	10	Θ	470	MPI_Bcast()
0.3	3	3	1	2	3525	<pre>void generatematrix(double *, int) C</pre>
0.0	0.331	0.331	10	Θ	33	MPI_Gather()
0.0	0.0379	0.0379	11	Θ	3	double norm2(double *, int) C
0.0	0.0142	0.0142	1	Θ	14	<pre>void generatevec(double *, int) C</pre>
0.0	0.00525	0.00525	13	Θ	0	MPI_Comm_size()
0.0	0.00413	0.00413	13	0	0	MPI_Comm_rank()