## NODE 0; CONTEXT 0; THREAD 0:

| %Time | Exclusive<br>msec | Inclusive<br>total msec | #Call | #Subrs | Inclusive usec/call | 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               | double powerMethod(double *, double *, int, int) C |
| 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     | Θ      | 2505                | MPI_Finalize()                                     |
| 0.1   | 1                 | 1                       | 10    | Θ      | 145                 | MPI Gather()                                       |
| 0.1   | 0.61              | 0.61                    | 10    | Θ      | 61                  | MPI Bcast()  |
| 0.0   | 0.041             | 0.041                   | 11    | Θ      | 4                   | double norm2(double *, int) C                      |
| 0.0   | 0.009             | 0.009                   | 13    | Θ      | 1                   | MPI Comm size()                                    |
| 0.0   | 0.004             | 0.004                   | 13    | Θ      | 0                   | MPI Comm rank()                                    |
| 0.0   | 0.004             | 0.004                   | 1     | Θ      | 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<br>msec | Inclusive<br>total msec | #Call | #Subrs | <pre>Inclusive Name usec/call</pre>                      |
|-------|-------------------|-------------------------|-------|--------|--|
| 100.0 | 1                 | 1,115                   | 1     | <br>7  | 1115490 int main(int, char **) C                         |
| 92.1  | 1,027             | 1,027                   | 1     | 0      | 1027362 MPI Init()                                       |
| 6.3   | 0.25              | 70                      | 1     | 23     | 70733 double powerMethod(double *, double *, int, int) C |
| 6.3   | 68                | 70                      | 10    | 40     | 7045 void matVec(double *, double *, double *, int) C    |
| 1.2   | 13                | 13                      | 1     | 2      | 13063 void generatematrix(double *, int) C               |
| 0.2   | 2                 | 2                       | 1     | 0      | 2332 MPI_Finalize()                                      |
| 0.1   | 1                 | 1                       | 10    | 0      | 128 MPI_Bcast()  |
| 0.0   | 0.408             | 0.408                   | 10    | 0      | 41 MPI_Gather()  |
| 0.0   | 0.036             | 0.036                   | 11    | 0      | 3 dou $\overline{b}$ le 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 void generatevec(double *, int) C                      |
| 0.0   | 0                 | 0                       | 13    | Θ      | 0 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<br>msec | Inclusive<br>total msec | #Call | #Subrs | <pre>Inclusive usec/call</pre> | Name  |
|-------|-------------------|-------------------------|-------|--------|--------------------------------|---|
| 100.0 | 1                 | 1,115                   | 1     | 7      | 1115586                        | 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 *, 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    | Θ      | 87                             | MPI_Bcast()   |
| 0.0   | 0.309             | 0.309                   | 10    | 0      | 31                             | MPI Gather()  |
| 0.0   | 0.037             | 0.037                   | 11    | Θ      | 3                              | double norm2(double *, int) C                                 |
| 0.0   | 0.007             | 0.007                   | 13    | Θ      | 1                              | MPI Comm size()   |
| 0.0   | 0.004             | 0.004                   | 1     | Θ      | 4                              | <pre>void generatevec(double *, int) C</pre>                  |
| 0.0   | 0.001             | 0.001                   | 13    | 0      | Θ                              | MPI_Comm_rank()   |

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<br>msec | Inclusive<br>total msec | #Call | #Subrs | Inclusive  <br>usec/call | Name   |
|-------|-------------------|-------------------------|-------|--------|--------------------------|--|
| 100.0 | 1                 | 1,115                   | 1     | 7      | 1115479                  | int main(int, char **) C                           |
| 92.1  | 1,027             | 1,027                   | 1     | Θ      | 1027346 I                | MPI Init()   |
| 6.3   | 0.245             | 70                      | 1     | 23     | 70319                    | double powerMethod(double *, double *, int, int) C |
| 6.3   | 69                | 70                      | 10    | 40     | 7003                     | <pre>void matVec(double *, double *, int) C</pre>  |
| 1.2   | 13                | 13                      | 1     | 2      | 13481                    | <pre>void generatematrix(double *, int) C</pre>    |
| 0.2   | 2                 | 2                       | 1     | Θ      | 2545 I                   | MPI_Finalize()                                     |
| 0.1   | 0.648             | 0.648                   | 10    | Θ      | 65 I                     | MPI Bcast()  |
| 0.0   | 0.337             | 0.337                   | 10    | 0      | 34 I                     | MPI_Gather()                                       |
| 0.0   | 0.041             | 0.041                   | 11    | 0      | 4                        | double norm2(double *, int) C                      |
| 0.0   | 0.008             | 0.008                   | 13    | Θ      | 1 1                      | MPI Comm size()                                    |
| 0.0   | 0.005             | 0.005                   | 1     | Θ      | 5 '                      | void generatevec(double *, int) C                  |
| 0.0   | 0.003             | 0.003                   | 13    | 0      | 0 1                      | MPI_Comm_rank()                                    |

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    |

# FUNCTION SUMMARY (total):

| 100.0 7 4,462 4 28 1115556 int main(int, char **) C 92.1 4,109 4,109 4 0 1027342 MPI_Init() 6.3 0.994 282 4 92 70681 double powerMethod(double *, double *, int, int 6.3 275 281 40 160 7039 void matVec(double *, double *, double *, int)  |  |
|--|--|
| 1.2 52 52 4 8 13099 void generatematrix(double *, int) C 0.2 10 10 4 0 2518 MPI_Finalize() 0.1 3 3 40 0 85 MPI_Bcast() 0.1 2 2 40 0 63 MPI_Gather() 0.0 0.155 0.155 44 0 4 double norm2(double *, int) C 0.0 0.032 0.032 52 0 1 MPI_Comm_size() 0.0 0.017 0.017 4 0 4 void generatevec(double *, int) C 0.0 0.008 0.008 52 0 0 MPI_Comm_rank() |  |

#### FUNCTION SUMMARY (mean):

| %Time | Exclusive<br>msec | Inclusive<br>total msec | #Call | #Subrs | Inclusive Name usec/call                                 |
|-------|-------------------|-------------------------|-------|--------|--|
| 100.0 | 1                 | 1,115                   | 1     | 7      | 1115556 int main(int, char **) C                         |
| 92.1  | 1,027             | 1,027                   | 1     | 0      | 1027342 MPI Init()                                       |
| 6.3   | 0.248             | 70                      | 1     | 23     | 70681 double powerMethod(double *, double *, int, int) C |
| 6.3   | 68                | 70                      | 10    | 40     | 7039 void matVec(double *, double *, double *, int) C    |
| 1.2   | 13                | 13                      | 1     | 2      | 13099 void generatematrix(double *, int) C               |
| 0.2   | 2                 | 2                       | 1     | Θ      | 2518 MPI_Finalize()                                      |
| 0.1   | 0.853             | 0.853                   | 10    | Θ      | 85 MPI Bcast()   |
| 0.1   | 0.626             | 0.626                   | 10    | Θ      | 63 MPI Gather()  |
| 0.0   | 0.0387            | 0.0387                  | 11    | Θ      | 4 double norm2(double *, int) C                          |
| 0.0   | 0.008             | 0.008                   | 13    | Θ      | 1 MPI Comm size()  |
| 0.0   | 0.00425           | 0.00425                 | 1     | Θ      | 4 void generatevec(double *, int) C                      |
| 0.0   | 0.002             | 0.002                   | 13    | 0      | 0 MPI_Comm_rank()  |