

mpiP on iforge

mpiP lightweight scalable MPI profiling is available from mpip.sourceforge.net .

To setup mpiP in your \$HOME (so that it goes with the mpi implementation you prefer), follow steps similar to the ones below:

```
./configure --with-cc=mpiicc --with-f77=mpiifort --disable-libunwind --prefix=$HOME/mpip_3.3
# intel compiler versions of mpiicc and mpiif77 contain an extra "i" in them on iforge
make
make install
```

Then [compile/link with mpiP](#) (include -g for source line number information in the mpiP report):

```
mpiicc -g cpi-sync.c -L ~/mpip_3.3/lib -lmpiP -lbfd
```

Run the code as usual. This example was run from within an interactive PBS batch job on iforge [qsub -l -V -lnodes=2:ppn=4,walltime=00:30:00]:

```
[arnoldg@iforge116 src]$ mpirun -np 8 ./a.out
mpiP:
mpiP: mpiP: mpiP V3.3.0 (Build May 29 2012/12:57:33)
mpiP: Direct questions and errors to mpip-help@lists.sourceforge.net
mpiP:
...
Process 6 received "Hi, how are you?"
PI is approximately 3.1415926535896133
mpiP:
mpiP: Storing mpiP output in [./a.out.8.11834.1.mpiP].
mpiP:
```

View the resulting text file report. The default format is shown, but there are many options to mpiP profiling available through the [MPIP environment variable](#) . Note that the ID number under the callsites will be the Site number in all the report sections that follow. Also, there are measurements for each rank (task) and averages are denoted by "**" .

```
@ mpiP
@ Command : ./a.out
@ Version : 3.3.0
@ MPIP Build date : May 29 2012, 12:57:33
@ Start time : 2012 05 29 13:47:20
@ Stop time : 2012 05 29 13:47:21
@ Timer Used : PMPI_Wtime
@ MPIP env var : [null]
@ Collector Rank : 0
@ Collector PID : 11834
@ Final Output Dir : .
@ Report generation : Single collector task
@ MPI Task Assignment : 0 iforge116
@ MPI Task Assignment : 1 iforge116
@ MPI Task Assignment : 2 iforge116
@ MPI Task Assignment : 3 iforge116
@ MPI Task Assignment : 4 iforge115
@ MPI Task Assignment : 5 iforge115
@ MPI Task Assignment : 6 iforge115
@ MPI Task Assignment : 7 iforge115
```

```
-----
@--- MPI Time (seconds) -----
-----
```

Task	AppTime	MPITime	MPI%
0	0.418	0.00967	2.31
1	0.41	0.00196	0.48
2	0.413	0.00436	1.05

3	0.413	0.0047	1.14
4	0.413	0.00386	0.94
5	0.413	0.00376	0.91
6	0.413	0.00365	0.89
7	0.418	0.00348	0.83
*	3.31	0.0354	1.07

@--- Callsites: 5 ---

ID	Lev	File/Address	Line	Parent_Funct	MPI_Call
1	0	cpi-sync.c	31	calc_pi	Bcast
2	0	cpi-sync.c	93	main	Bcast
3	0	cpi-sync.c	84	main	Recv
4	0	cpi-sync.c	46	calc_pi	Reduce
5	0	cpi-sync.c	79	main	Send

@--- Aggregate Time (top twenty, descending, milliseconds) -----

Call	Site	Time	App%	MPI%	COV
Bcast	2	18.5	0.56	52.31	0.52
Reduce	4	8.57	0.26	24.19	2.45
Send	5	5.96	0.18	16.82	0.60
Recv	3	1.98	0.06	5.58	0.00
Bcast	1	0.39	0.01	1.10	0.50

@--- Aggregate Sent Message Size (top twenty, descending, bytes) -----

Call	Site	Count	Total	Avrg	Sent%
Bcast	2	8	199	24.9	41.72
Send	5	7	182	26	38.16
Reduce	4	8	64	8	13.42
Bcast	1	8	32	4	6.71

@--- Callsite Time statistics (all, milliseconds): 32 -----

Name	Site	Rank	Count	Max	Mean	Min	App%	MPI%
Bcast	1	0	1	0.072	0.072	0.072	0.02	0.74
Bcast	1	1	1	0.055	0.055	0.055	0.01	2.80
Bcast	1	2	1	0.044	0.044	0.044	0.01	1.01
Bcast	1	3	1	0.02	0.02	0.02	0.00	0.43
Bcast	1	4	1	0.082	0.082	0.082	0.02	2.12
Bcast	1	5	1	0.066	0.066	0.066	0.02	1.76
Bcast	1	6	1	0.038	0.038	0.038	0.01	1.04
Bcast	1	7	1	0.013	0.013	0.013	0.00	0.37
Bcast	1	*	8	0.082	0.0488	0.013	0.01	1.10
Bcast	2	0	1	0.042	0.042	0.042	0.01	0.43
Bcast	2	1	1	1.72	1.72	1.72	0.42	87.82
Bcast	2	2	1	3.74	3.74	3.74	0.91	85.91
Bcast	2	3	1	3.81	3.81	3.81	0.92	81.09
Bcast	2	4	1	2.15	2.15	2.15	0.52	55.58
Bcast	2	5	1	2	2	2	0.48	53.18
Bcast	2	6	1	2.59	2.59	2.59	0.63	71.03
Bcast	2	7	1	2.48	2.48	2.48	0.59	71.30
Bcast	2	*	8	3.81	2.32	0.042	0.56	52.31
Recv	3	0	7	1.45	0.282	0.006	0.47	20.44
Recv	3	*	7	1.45	0.282	0.006	0.06	5.58
Reduce	4	0	1	7.58	7.58	7.58	1.81	78.38
Reduce	4	1	1	0.095	0.095	0.095	0.02	4.84
Reduce	4	2	1	0.051	0.051	0.051	0.01	1.17
Reduce	4	3	1	0.333	0.333	0.333	0.08	7.09
Reduce	4	4	1	0.18	0.18	0.18	0.04	4.66
Reduce	4	5	1	0.223	0.223	0.223	0.05	5.93
Reduce	4	6	1	0.08	0.08	0.08	0.02	2.19
Reduce	4	7	1	0.035	0.035	0.035	0.01	1.00
Reduce	4	*	8	7.58	1.07	0.035	0.26	24.19
Send	5	1	1	0.089	0.089	0.089	0.02	4.53
Send	5	2	1	0.519	0.519	0.519	0.13	11.91

Send	5	3	1	0.535	0.535	0.535	0.13	11.40
Send	5	4	1	1.45	1.45	1.45	0.35	37.64
Send	5	5	1	1.47	1.47	1.47	0.36	39.13
Send	5	6	1	0.94	0.94	0.94	0.23	25.74
Send	5	7	1	0.952	0.952	0.952	0.23	27.32
Send	5	*	7	1.47	0.851	0.089	0.18	16.82

@--- Callsite Message Sent statistics (all, sent bytes) -----

Name	Site	Rank	Count	Max	Mean	Min	Sum
Bcast	1	0	1	4	4	4	4
Bcast	1	1	1	4	4	4	4
Bcast	1	2	1	4	4	4	4
Bcast	1	3	1	4	4	4	4
Bcast	1	4	1	4	4	4	4
Bcast	1	5	1	4	4	4	4
Bcast	1	6	1	4	4	4	4
Bcast	1	7	1	4	4	4	4
Bcast	1	*	8	4	4	4	32
Bcast	2	0	1	17	17	17	17
Bcast	2	1	1	26	26	26	26
Bcast	2	2	1	26	26	26	26
Bcast	2	3	1	26	26	26	26
Bcast	2	4	1	26	26	26	26
Bcast	2	5	1	26	26	26	26
Bcast	2	6	1	26	26	26	26
Bcast	2	7	1	26	26	26	26
Bcast	2	*	8	26	24.88	17	199
Reduce	4	0	1	8	8	8	8
Reduce	4	1	1	8	8	8	8
Reduce	4	2	1	8	8	8	8
Reduce	4	3	1	8	8	8	8
Reduce	4	4	1	8	8	8	8
Reduce	4	5	1	8	8	8	8
Reduce	4	6	1	8	8	8	8
Reduce	4	7	1	8	8	8	8
Reduce	4	*	8	8	8	8	64
Send	5	1	1	26	26	26	26
Send	5	2	1	26	26	26	26
Send	5	3	1	26	26	26	26
Send	5	4	1	26	26	26	26
Send	5	5	1	26	26	26	26
Send	5	6	1	26	26	26	26
Send	5	7	1	26	26	26	26
Send	5	*	7	26	26	26	182

@--- End of Report -----
