

*The Message Passing Interface:  
On the Road to MPI 4.0 & Beyond*

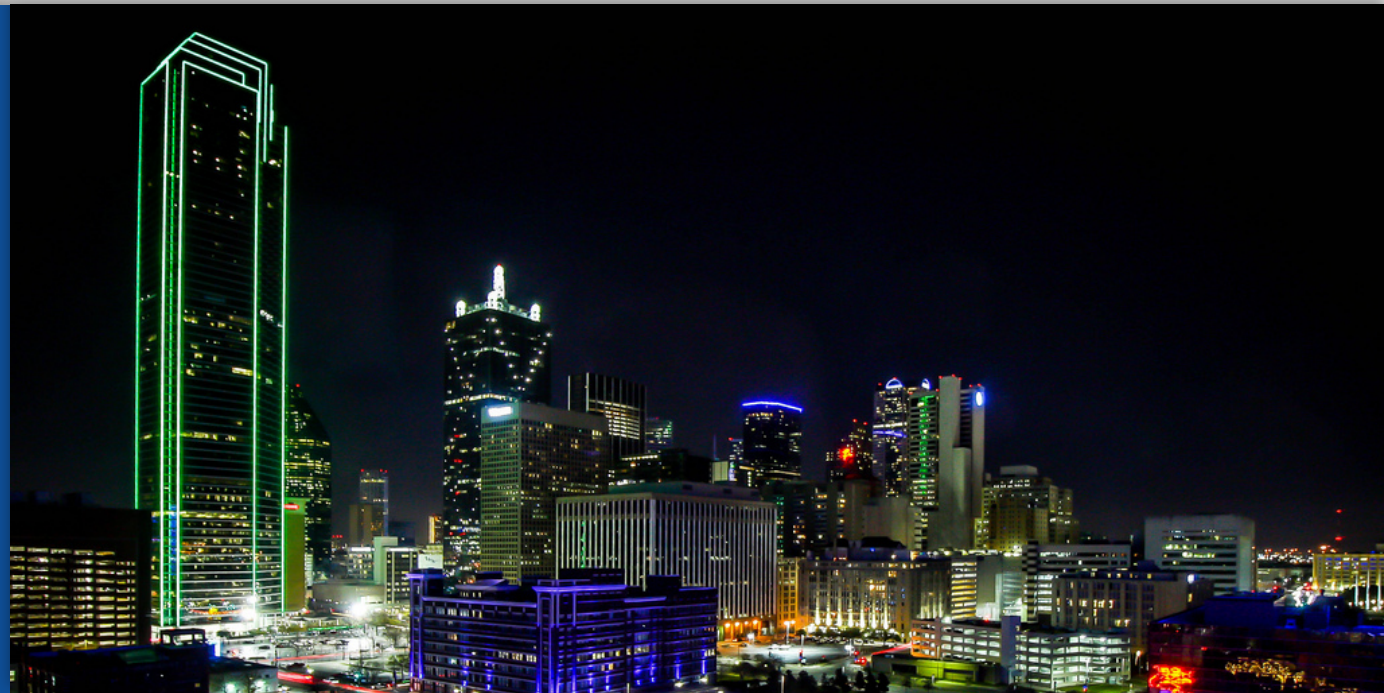


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Chair of the MPI Forum



MPI Forum BOF @ SC 2018  
<http://www.mpi-forum.org/>



# MPI Continuous to Evolve

MPI 3.1 going strong



# Status of MPI-3.1 Implementations



	MPICH	MVAPICH	Open MPI	Cray	Tianhe	Intel MPI	IBM			HPE	Fujitsu	MS	MPC	NEC	Sunway	RIKEN	AMPI
							BG/Q (legacy) <sup>1</sup>	PE (legacy) <sup>2</sup>	Spectrum								
NBC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nbr. Coll.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
RMA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(*)
Shr. mem	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*
MPI_T	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	Q1 '19
Comm-create group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓
F08 Bindings	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	*	✗	✓	✓	✓	✓	Q2 '19
New Dtypes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Large Counts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MProbe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NBC I/O	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	*	✗	*	✓	✗	✓	Q2'19

Slide Updated 11/6/2018

Release dates are estimated and are subject to change at any time

✗ indicates no publicly announced plan to implement/support that feature

<sup>1</sup> Open Source but unsupported

<sup>2</sup> No MPI\_T variables exposed

\* Under development (\*) Partly done

Thanks to  
Pavan  
Balaji

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MPI 3.1 going strong

On track towards MPI 4.0 with major proposed additions

- Better fault management as a first step to fault tolerance
- Persistent collective operations
- New tool interface to capture event traces
- Support for FP16
- Enhancements for one-sided communication
- Detection and optimization of process mappings

Draft standard of currently approved changes

- Preview of parts of MPI 4.0
- Available by tomorrow on MPI Forum website

<http://www.mpi-forum.org/>



## We Want to Grow the MPI Community!

<http://www.mpi-forum.org/>

MPI Forum is an open forum

- Everyone / every organization can join
- Voting rights depends on attendance of physical meetings

Get involved

- Let us know what you or your applications need
  - [mpi-comments@mpi-forum.org](mailto:mpi-comments@mpi-forum.org)
- Participate in WGs
  - Email list and Phone meetings
  - Each WG has its own Wiki
- Join us at a MPI Forum F2F meeting
  - Next meetings: San Jose (Dec), Chattanooga (Mar), Chicago (Jun), Zürich (Sep)



**EuroMPI'19**  
September 11-13 2019  
Zurich, Switzerland  
<https://eurompi19.inf.ethz.ch>

**Important dates:**

**Submission server opens:** January 14th, 2019  
**Full paper submission:** April 15th, 2019 (AOE)  
**Notification:** July 1st, 2019  
**Camera-ready:** August 5th, 2019



## Major Technical Work in the MPI Forum

Wesley Bland, Intel

Error Management

Kathryn Mohror, LLNL

MPI\_T Events Interface

Pavan Balaji, ANL

One Sided Communication

Tony Skjellum, UT Chattanooga

Persistence and Large Count

Dan Holmes, EPCC

MPI Sessions