

A Note on Assertions

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MPI Assertions

- Previous proposal by Dick Treuman
 - Seems to be stuck somehow
 - Very inflexible (basically a fixed set of assertions at the beginning)
 - Puts the burden on us to decide **which** assertions to standardize
 - + weird discussions about bit vectors 😊



Another Viewpoint

- We have MPI_Info objects
 - They're very flexible and allow for vendor-specific extensions
 - Test before standardizing
 - Good example: graph topologies
- Usage of MPI_Info is inflexible
 - Some functions have info arguments, some don't, seems rather random ☹️



Info vs. Assertions

- Info arguments can be used to assert usage of MPI as long as:
 - They can safely be ignored !
 - i.e., they don't affect correctness if ignored
 - BUT: they may affect correctness if used wrongly (e.g., “no_locks”)
- Usually used for performance
 - Similar to main motivation for assertions



A proposal

- Allow to attach new info values to MPI objects (comm, win, ddt, ...)
- E.g., attach info to a comm
 - `MPI_Info_attach(MPI_Comm comm, MPI_Info info)`
 - Possible info objects for communicators include:
 - `no_any_tag`, `no_any_source`, `no_concurrent_access`, ...
 - Can easily be extended!



Questions/Discussion?

- What do you think?
 - Straw vote: “Should this be fleshed out as a concrete proposal to be presented at the next meeting?”
 - Yes
 - No
 - Abstain

