

# LA-UR-21-32220

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**Title:** Quadchart for ECP OMPI-X JIRA ISSUE STPR17-79

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# MPI Sessions –

## Update Sessions WG activities post MPI 4 standard ratification

**ECP WBS** 2.3.1.17 / OMPI-X

**Epic/Story** STPR 17-79

**PI** David Bernholdt, ORNL

**Milestone Lead** Howard Pritchard, LANL

**Members** ORNL, LANL, LLNL, SNL, UTK

### Scope and objectives

- ECP OMPI-X develops a production grade MPI library
- Sessions ratified and in MPI 4.0 Specification
- Minor updates and corrections for a MPI 4.1 Specification
- Major updates for a future MPI 5 Specification targeting better support for malleable and fault tolerant MPI usage models

### Better support for multi-component applications

- Different components of an application can specify different levels of thread safety
- Specify different operational characteristics of MPI (e.g. spin polling vs blocking) on a per component basis
- Backward compatibility with apps using MPI\_Init
- Better support for beyond BSP applications

### Impact

- **New Way to Use MPI:** better isolation of application components use of MPI (thread support, polling models, more scalable resource requirements specificity etc.)
- **New Application spaces:** only components of application that need to use MPI need do so, potentially expanding range of applications which can use MPI

### Project accomplishment

- MPI Sessions feature ratified by the MPI Forum and is part of MPI 4.0 Specification
- Issues to fix in a 4.1 specification have been identified and are being addressed
- Started meeting with fault tolerant WG to better synchronize efforts targeting MPI 5

**Deliverables** Report describing Sessions WG activities post 4.0 ratification [STPR17-79](#)  
WG artifacts on GitHub: <https://github.com/mpiwg-sessions/sessions-issues/wiki>