ISSUES IN STANDARDIZING THE PARALLEL BLAS

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6 or 60 character function names

ISN'T

the issue of the day!

Data Layouts Evolving

- blocked $\longrightarrow$ scattered $\longrightarrow$ block scattered; 1D $\longrightarrow$ 2D
- HPF fixed on 2D block scattered
  - ScaLAPACK used
- Evolution continues: other 2D; 3D; sparse

$\triangleright$ Learned from 2D block scattered but now viable alternatives

Applications Demand Alternatives

- Parallel matrix multiplication is key BLAS3 kernal
  - code easy
  - communication cost low
  - overlap communication with computation

▷ Simple data layouts optimal

- MM key to PRISM eigensolver but other influences
  - load balancing
  - RRTRID

▷ Naturally developed alternative data layout which achieved performance with less effort

- Alternative data layouts won't ruin MM performance

Diversity Must Be Accomodated

- Library writer & tool developer
- Application users
- Developers of new mathematical descriptions for data placement & access

We Can Succeed!

- MPI model
  - Open & public
- Understand commitment & effort
- Choose scope appropriately

The Time Is Now

- Diverse & viable alternatives to consider
- New ideas $\Longrightarrow$ more general framework

$\triangleright$ Need ongoing mechanism to achieve correct standard

Must *extabilish mechanism now to give effort a chance at success*

now