# GPU with Tensor Cores

- Tensor cores (NVIDIA) operate ≈ 16 times faster than normal computation (for some applications)

- Use 16-b, half-precision arithmetic, a floating-point format that uses a fraction of the digits compared with double (64-b) precision

## Mixed Precision: A Strategy for New Science Opportunities

**Jonathan Hines**
Oak Ridge National Laboratory

**Editors:**
**James J. Hack**
Oak Ridge National Laboratory
jhack@ornl.gov

**Michael E. Papka**
Argonne National Laboratory
papka@anl.gov

Since the days of vector supercomputers, computational scientists have relied on high-precision arithmetic to accurately solve problems. But changes to hardware, spurred by the demand for more computing capability and growth in machine learning, have researchers considering lower precision alternatives.