Kalray MPPA-256 scalable compute cartridge
An efficient architecture applied to Oil & Gas HPC

Benoît Ganne  benoit.ganne@kalray.eu
Christian Chabrerie  christian.chabrerie@kalray.eu
Thierry Strudel  thierry.strudel@kalray.eu
Chris Piercy  christopher.piercy@kalray.eu
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**key facts**

- 20+ GFLOPS/W
- 8 DDR3 controllers
  - Up to 64GB DDR
  - Up to 102.4GB/s
- 128MB on-chip memory
- Scalable interconnects
  - Several cartridges can be interconnected to increase overall on-chip memory
- C, C++, Fortran, MPI, OpenMP
- 4xPCIe Gen3, 8x10GbE
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SGEMM scalability

Linear scaling across multiple SoC!
MPPA-256 scalable compute cartridge

RTM parallelization

- A full shot fits in DDR
- Consider the full 128MB on-chip memory as a single cache
  - By pairing several cartridges we can use more on-chip memory
- Leverage NoC to exchange shadow regions
Merci, et bon appétit !