**ABSTRACT**

**TransLib**, an open-source kernel library based on transprecision computing principles, which provides knobs to exploit different FP data types (i.e., float, float16, and bfloat16), also considering the trade-off between fixed- and mixed-precision solutions.

Each kernel design includes:
- Python model: Emulate the hardware and provide a golden reference independent of the execution of the C code
- C program: Including a set of optimizations portable among MCU-class targets and supporting vectorization, parallelization, fixed- and mixed-precision.

**EXPERIMENTAL RESULTS**

On average, we achieved 1.97x, 3.0x, 7.6x speedups on 2, 4, and 8 cores.
On average, we achieved 1.7x, 3.3x, 6.4x, and 12.83x speedups on 2, 4, and 8 cores.

**NEXT RELEASES**

- Expand the library by adding additional kernels.
- Extend the support to additional FP data types (e.g., different flavors of 8-bit FP types).

**ACKNOWLEDGEMENT**

This work was supported by the APROPOS project (g.o.a. 956090), founded by the European Union’s Horizon 2020 research and innovation program.