

Parallel Programming with OpenMP

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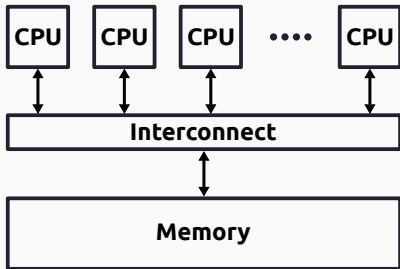
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What is OpenMP?

1. Is a standard
2. Shared memory
3. Threads-based
4. Compiler directives

OpenMP[®]



Why OpenMP?

Pros:

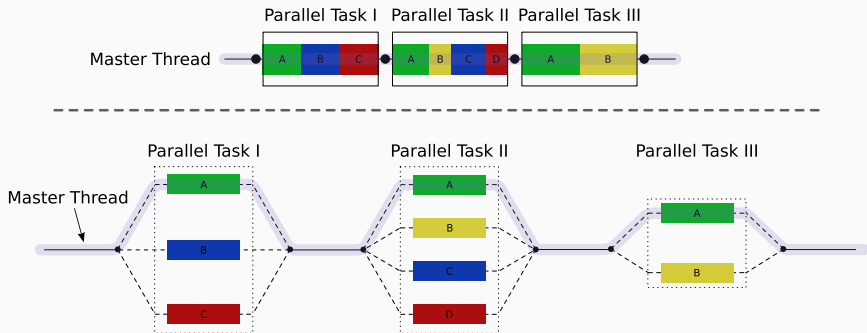
- User friendly
- Incremental parallelization of a serial code

Cons:

- Limited control
- Focuses on data parallelism

Not so much on recent versions!

Fork-join model



Source: https://en.wikipedia.org/wiki/Fork%E2%80%93join_model

How OpenMP works?

- Usable in standard C/C++ code
- Uses `#pragma` directives
- Implemented by the compiler (e.g: gcc)
- Enabled with `-fopenmp`
- Provides a shared library:
 - `omp.h`
 - `lib<something>.so` (e.g: `libgomp.so.1`)

Let's see some code...