OpenMP Parallel Prefix Sum (1A)

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Based on https://www.cs.fsu.edu/~engelen/courses/HPC/Synchronous.pdf

Please send corrections (or suggestions) to youngwlim@hotmail.com.

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MPI Parallel Prefix – Scan

```
for (j = 0; j < log2(n); j++) {
  #pragma omp parallel private(i)
  {
    #pragma omp for
    for (i = 1<<j; i < n; i++)
      t[i] = x[i] + x[i – 1<<j];

    #pragma omp for
    for (i = 1<<j; i < n; i++)
      x[i] = t[i];
  }
}
```

Parallel Pragma

The parallel pragma starts a parallel block.
It creates a group of N threads.
The number of threads is determined at runtime
(usually the number of CPU cores)

```
#pragma omp parallel
{

    // Code inside this region runs in parallel.

}
```

Loop Directive

Splits the for-loop so that each thread in the current group handles a different portion of the loop.

```
#pragma omp for
for(int n=0; n<10; ++n)
{

}
```

References

[1] en.wikipedia.org
[2] R. v. Engelen, https://www.cs.fsu.edu/~engelen/courses/HPC/Synchronous.pdf
[3] http://bisqwit.iki.fi/story/howto/openmp/#ParallelPragma
[4] http://openmp.org/wp/