Example: Fibonacci

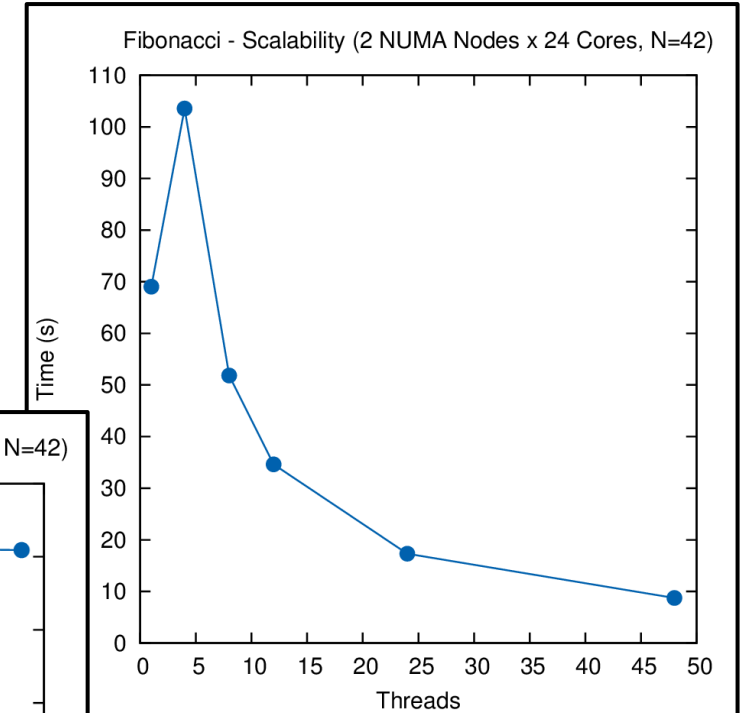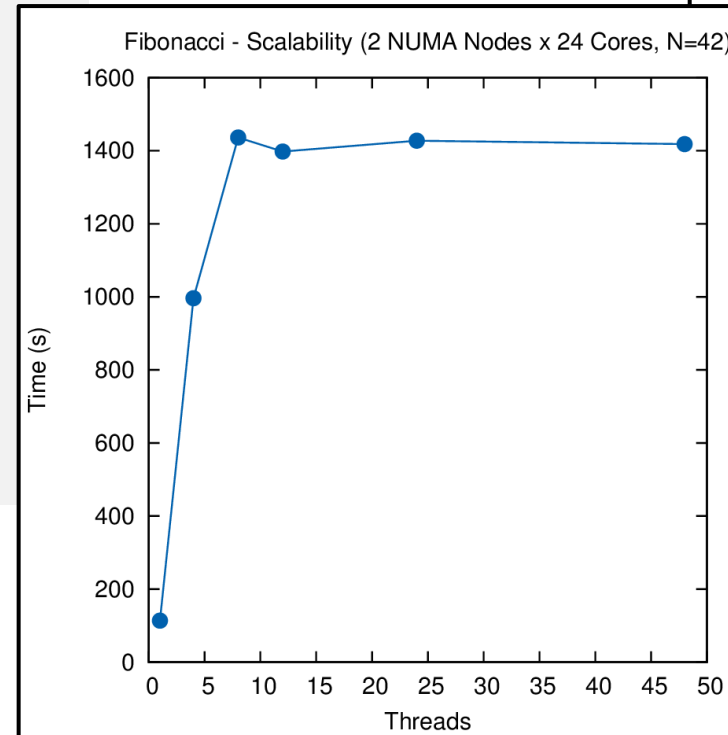# Fibonacci: without cutoff

```
int fib(int n) {
  if (n < 2)
    return n;

  int res1, res2;
  #pragma omp task shared(res1)
  res1 = fib(n-1);

  #pragma omp task shared(res2)
  res2 = fib(n-2);

  #pragma omp taskwait

  return res1 + res2;
}
```


Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

icc 2018.0

Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

gcc 7.2.0

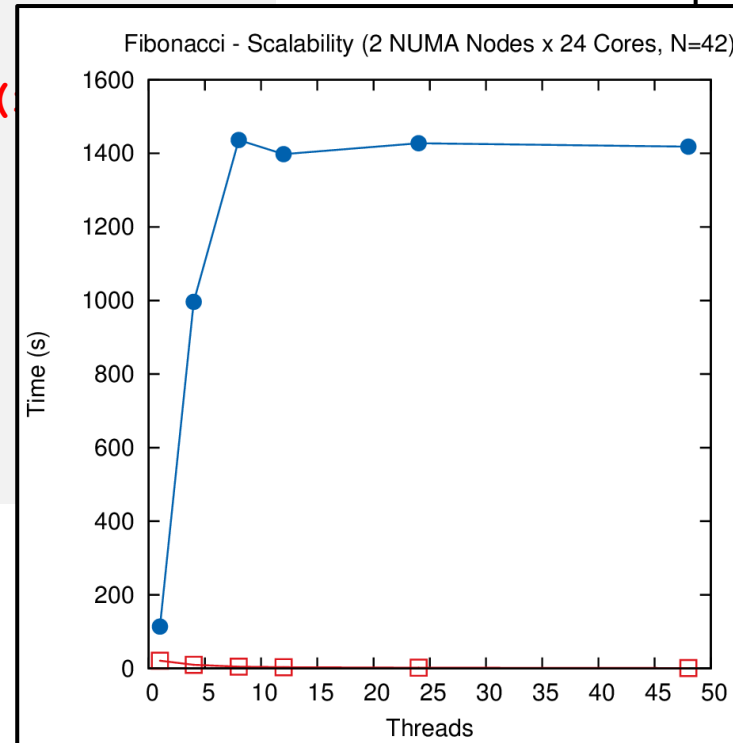no_cutoff

Fibonacci: `if` clause


```c
int fib(int n) {
  if (n < 2)
    return n;

  int res1, res2;
#pragma omp task shared(res1) if(n > 30)
  res1 = fib(n-1);

#pragma omp task shared(res2) if(
  res2 = fib(n-2);

#pragma omp taskwait

  return res1 + res2;
}
```
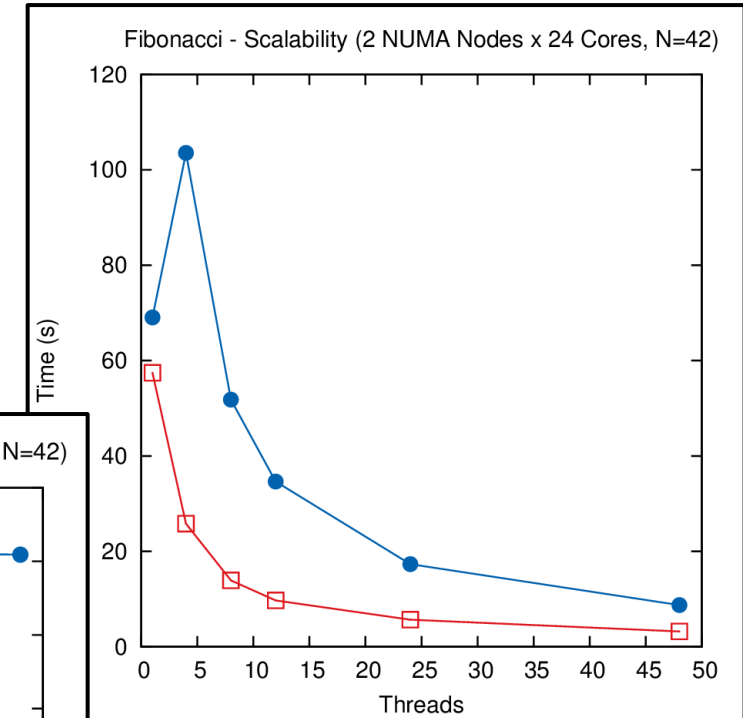
Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

icc 2018.0

Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

gcc 7.2.0

no_cutoff
if_clause

Fibonacci: manual optimization

```
int fib(int n) {
  if (n < 30)
    return fib_serial(n);

  int res1, res2;
  #pragma omp task shared(res1)
  res1 = fib(n-1);

  #pragma omp task shared(res2)
  res2 = fib(n-2);

  #pragma omp taskwait

  return res1 + res2;
}
```
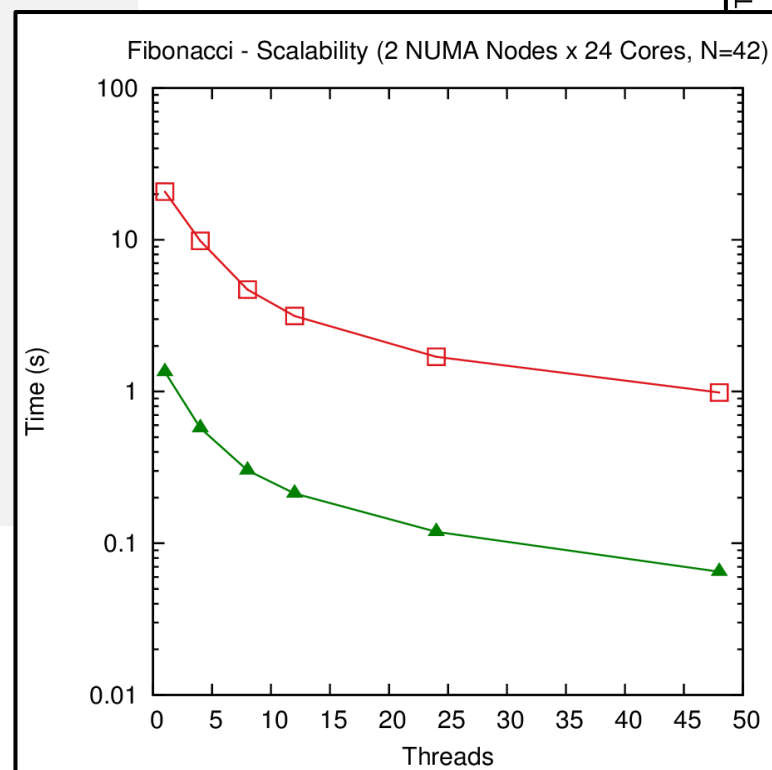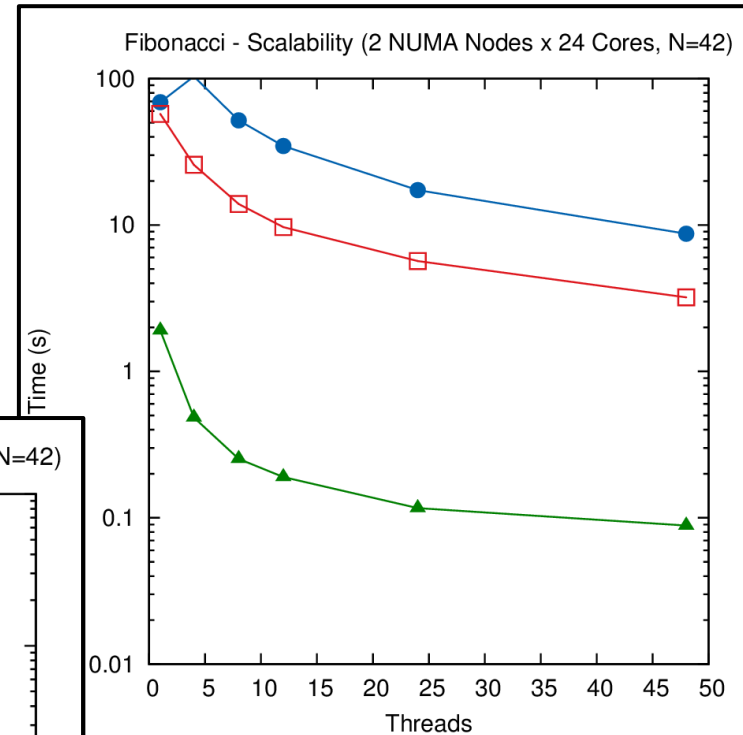
Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

icc 2018.0

Fibonacci - Scalability (2 NUMA Nodes x 24 Cores, N=42)

gcc 7.2.0

no_cutoff
if_clause
man_cutoff

Mastering Tasking with OpenMP – Cutoff
Christian Terboven