

Untitled1

In [27]:

```
import pandas
from io import StringIO

import numpy as np
import matplotlib.pyplot as plt

%matplotlib inline
```

In [90]:

```
scaling_rectangular = """np,ntri,perfect,ctime,dtime,etime
48, 1000000, 1, 2.664867, 6.768517, 4.274853
96, 1000000, 2, 2.658987, 6.908201, 3.065186
192, 1000000, 4, 2.581093, 7.691170, 1.287621
384, 1000000, 8, 2.576281, 12.940879, 0.917001
768, 1000000, 16, 2.554726, 20.736035, 1.106673
1536, 1000000, 32, 2.547276, 38.388572, 10.896355"""
```

```
df_r = pandas.read_csv(StringIO(scaling_rectangular))
```

In [91]:

```
df_r
```

Out[91]:

	np	ntri	perfect	ctime	dtime	etime
0	48	1000000	1	2.664867	6.768517	4.274853
1	96	1000000	2	2.658987	6.908201	3.065186
2	192	1000000	4	2.581093	7.691170	1.287621
3	384	1000000	8	2.576281	12.940879	0.917001
4	768	1000000	16	2.554726	20.736035	1.106673
5	1536	1000000	32	2.547276	38.388572	10.896355

In [92]:

```
scaling_r = df_r['etime'][0]/df_r['etime']
```

```
scaling_r
```

```
Out[92]:
```

```
0    1.000000
1    1.394647
2    3.319962
3    4.661776
4    3.862797
5    0.392320
```

```
Name: etime, dtype: float64
```

```
In [94]:
```

```
df_r['ntri']/df_r['np']
```

```
Out[94]:
```

```
0    20833.333333
1    10416.666667
2     5208.333333
3     2604.166667
4     1302.083333
5      651.041667
```

```
dtype: float64
```

```
In [83]:
```

```
scaling_tsunami = """np,ntri,perfect,ctime,dtime,etime
48, 1000000, 1, 2.623519, 6.659056, 1.258111
96, 1000000, 2, 2.537380, 6.734603, 0.824404
192, 1000000, 4, 2.641103, 7.671029, 0.730435
384, 1000000, 8, 2.610856, 14.607916, 1.090997
768, 1000000, 16, 2.620872, 20.838651, 0.463753
1536, 1000000, 32, 2.619618, 39.924096, 9.533266"""
```

```
df_t = pandas.read_csv(StringIO(scaling_tsunami))
```

```
In [84]:
```

```
df_t
```

```
Out[84]:
```

	np	ntri	perfect	ctime	dtime	etime
0	48	1000000	1	2.623519	6.659056	1.258111
1	96	1000000	2	2.537380	6.734603	0.824404
2	192	1000000	4	2.641103	7.671029	0.730435
3	384	1000000	8	2.610856	14.607916	1.090997

	np	ntri	perfect	ctime	dtime	etime
4	768	1000000	16	2.620872	20.838651	0.463753
5	1536	1000000	32	2.619618	39.924096	9.533266

In [88]:

```
scaling_t = df_t['etime'][0]/df_t['etime']
```

scaling_t

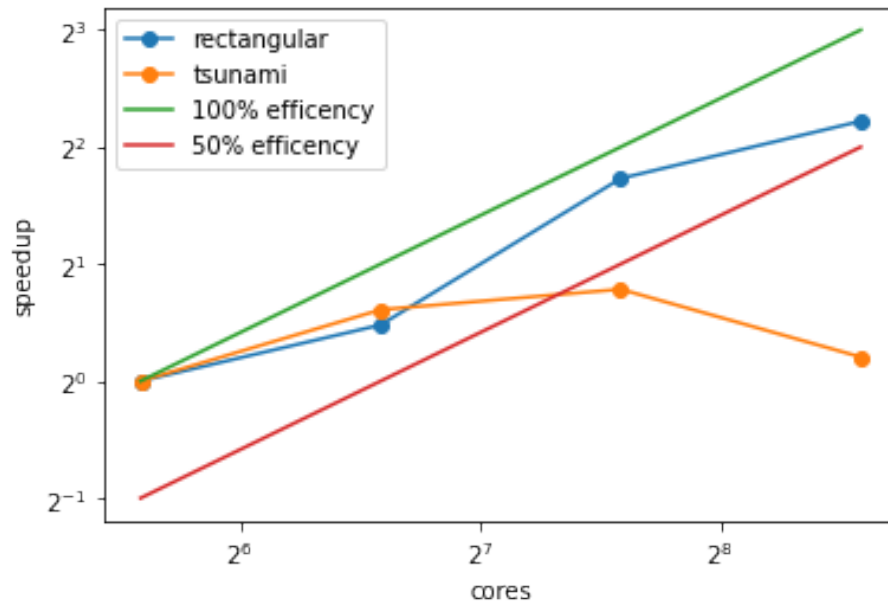
Out[88]:

```
0    1.000000
1    1.526086
2    1.722413
3    1.153175
4    2.712890
5    0.131971
```

Name: etime, dtype: float64

In [102]:

```
plt.loglog(df_r['np'][:-2],scaling_r[:-2], '-o', base=2, label='rectangular')
plt.loglog(df_t['np'][:-2],scaling_t[:-2], '-o', base=2, label='tsunami')
plt.loglog(df_r['np'][:-2],df_r['perfect'][:-2], base=2, label='100% efficiency')
plt.loglog(df_r['np'][:-2],df_r['perfect'][:-2]/2, base=2, label='50% efficiency')
plt.legend()
plt.xlabel('cores')
plt.ylabel('speedup');
```



In []:

In []: