```cpp
 1: // $Id: vectorthreads.cpp,v 1.7 2014-06-03 13:20:33-07 - - $
 2:
 3: // Have a vector of chatty threads.
 4:
 5: #include <iostream>
 6: #include <string>
 7: #include <thread>
 8: #include <vector>
 9: using namespace std;
10:
11: void hello (size_t seqnr) {
12:    cout << "Hello " << seqnr << " is thread id "
13:         << this_thread::get_id() << endl;
14: }
15:
16: int main () {
17:    cout << "thread::hardware_concurrency() = "
18:         << thread::hardware_concurrency() << endl;
19:    vector<thread> threads;
20:    for (size_t i = 0; i < 16; ++i) {
21:       cout << "Starting thread " << i << endl;
22:       threads.push_back (thread (hello, i));
23:    }
24:    for (auto& thr: threads) {
25:       cout << "Joining" << endl;
26:       thr.join();
27:    }
28: }
29:
30: //TEST// vectorthreads >vectorthreads.out
31: //TEST// mkpspdf vectorthreads.ps vectorthreads.cpp* vectorthreads.out
```

```
1: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: starting ./vectorthreads.cpp
2: ./vectorthreads.cpp:
3:      $Id: vectorthreads.cpp,v 1.7 2014-06-03 13:20:33-07 - - $
4: g++ -g -O0 -Wall -Wextra -std=gnu++11 ./vectorthreads.cpp -o ./vectorthr
eads -lglut -lGLU -lGL -lX11 -lm -lrt
5: rm -f ./vectorthreads.o
6: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: finished ./vectorthreads.cpp
```

```
 1: thread::hardware_concurrency() = 8
 2: Starting thread 0
 3: Starting thread 1
 4: Hello 0 is thread id 140416454964992
 5: Starting thread 2
 6: Hello 1 is thread id 140416444475136
 7: Starting thread 3
 8: Hello 2 is thread id 140416433985280
 9: Starting thread 4
10: Starting thread 5
11: Hello 4 is thread id 140416413005568
12: Starting thread 6
13: Hello Starting thread 7
14: Hello 6 is thread id 5 is thread id 140416402515712
15: Starting thread 8
16: Hello 7 is thread id 140416381536000
17: Starting thread 9
18: Hello 8 is thread id 140416371046144
19: Starting thread 10
20: Hello 3 is thread id 140416423495424
21: Starting thread 11
22: Hello 9 is thread id 140416360556288
23: Starting thread Hello 11 is thread id 140416339576576
24: 12
25: Hello 10 is thread id 140416350066432
26: Starting thread 13
27: 140416392025856
28: Hello 13 is thread id 140416318596864
29: Starting thread 14
30: Starting thread 15
31: Hello 14 is thread id 140416308107008
32: Joining
33: Hello 15 is thread id 140416297617152
34: Joining
35: Joining
36: Joining
37: Joining
38: Joining
39: Joining
40: Joining
41: Joining
42: Joining
43: Joining
44: Joining
45: Joining
46: Hello 12 is thread id 140416329086720
47: Joining
48: Joining
49: Joining
```