

### Administrivia

- Reminder: Homework 4 due today.
- Information about projects on the Web. Due on the day scheduled for a final (December 14 at 8:30am). We will use that time for presentations. (But we could start a bit later?)
- (A little about project requirements.)

Slide 1

### Heat-Diffusion Problem, Revisited

- We looked at OpenMP and MPI versions of this problem. How about OpenCL?
- This problem might initially seem like a reasonable fit for OpenCL, because we have lot of mostly-independent tasks that can execute concurrently.
- But the need for UEs to communicate (to share boundary information) makes this problem not such a good fit: The obvious way is just to copy data back to the host after every iteration. Unfortunately this seems very slow!
- (Look at code.)

Slide 2

### Bounded-Buffer Problem (Java)

Slide 3

- As an example of using additional Java multithreading constructs, consider a program to solve the classic “bounded buffer” problem, found in O/S textbooks and elsewhere.
- Problem is not so complicated:
  - “Buffer” of fixed size, which only one UE at a time can access.
  - “Producers” put items into the buffer, waiting if it’s full.
  - “Consumers” get items from buffer, waiting if it’s empty.
- Not so tough to write a Java class to implement this. Writing a test/demo program seems simple but becomes less so if you want to end the program nicely. (Look at code.)

### Minute Essay

Slide 4

- Anything noteworthy about Homework 4?
- And best wishes for a good holiday!