Symmetric Multiprocessor OS Considerations

A multiprocessor OS must provide all the functionality of a multiprogramming system plus additional features to accommodate multiple processors

Key design issues:

Simultaneous concurrent processes or threads

kernel routines need to be reentrant to allow several processors to execute the same kernel code simultaneously

Scheduling

any processor may perform scheduling, which complicates the task of enforcing a scheduling policy

Synchronization

with multiple active processes having potential access to shared address spaces or shared I/O resources, care must be taken to provide effective synchronization

Memory management

the reuse of physical pages is the biggest problem of concern

Reliability and fault tolerance

the OS should provide graceful degradation in the face of processor failure