



CS 152 Computer Architecture and Engineering

Lecture 20: Snoopy Caches

Krste Asanovic

Electrical Engineering and Computer Sciences
University of California, Berkeley

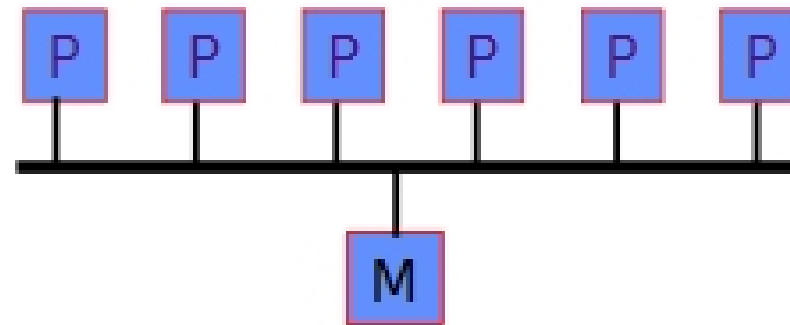
<http://www.eecs.berkeley.edu/~krste>

<http://inst.cs.berkeley.edu/~cs152>



Recap: Sequential Consistency

A Memory Model



“ A system is *sequentially consistent* if the result of any execution is the same as if the operations of all the processors were executed in some sequential order, and the operations of each individual processor appear in the order specified by the program”

Leslie Lamport

Sequential Consistency =
arbitrary *order-preserving interleaving*
of memory references of sequential programs



Recap: Sequential Consistency

Sequential consistency imposes more memory ordering constraints than those imposed by uniprocessor program dependencies (\longrightarrow)

What are these in our example ?

T1:

Store (X), 1 ($X = 1$)
Store (Y), 11 ($Y = 11$)

T2:

Load R_1 , (Y)
Store (Y'), R_1 ($Y' = Y$)
Load R_2 , (X)
Store (X'), R_2 ($X' = X$)

\longrightarrow additional SC requirements