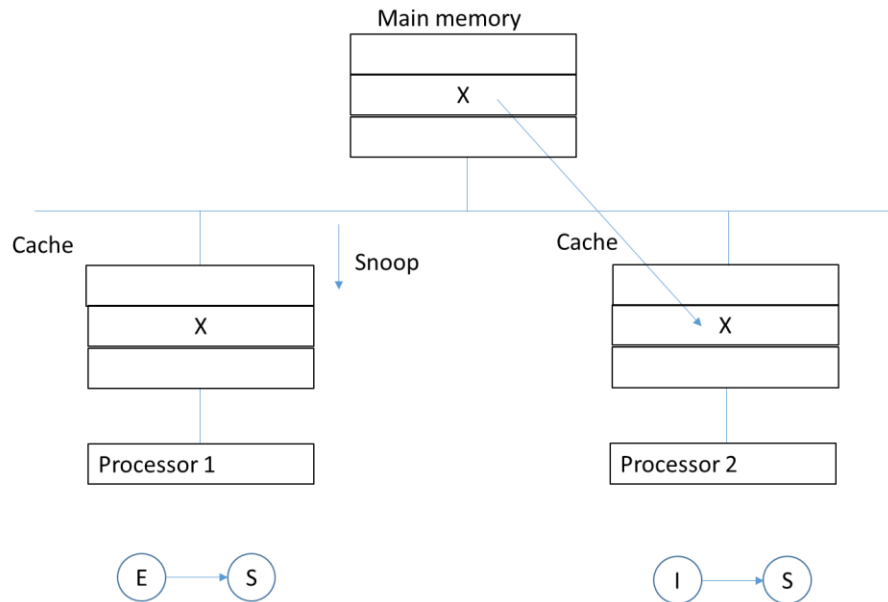


Multiprocessor assignment

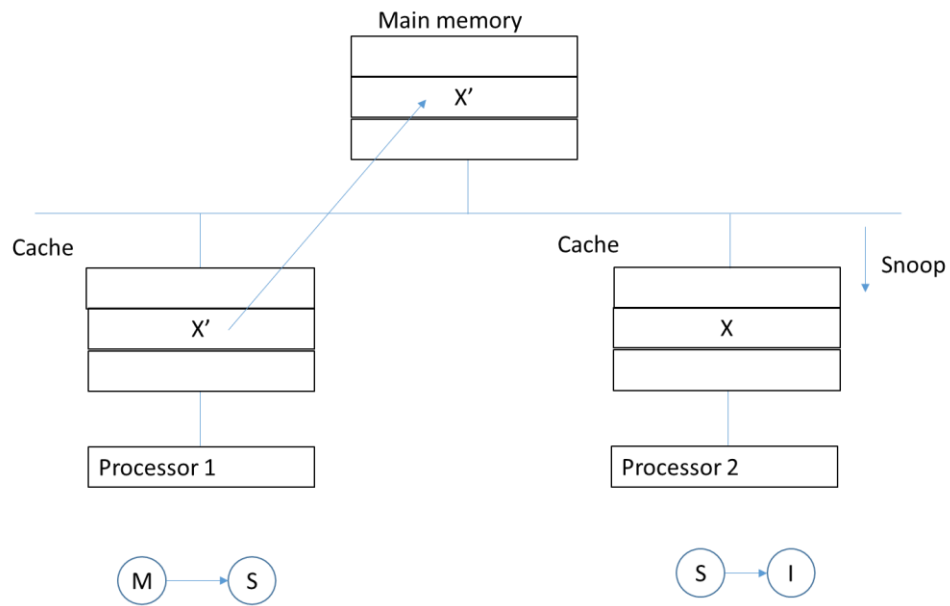
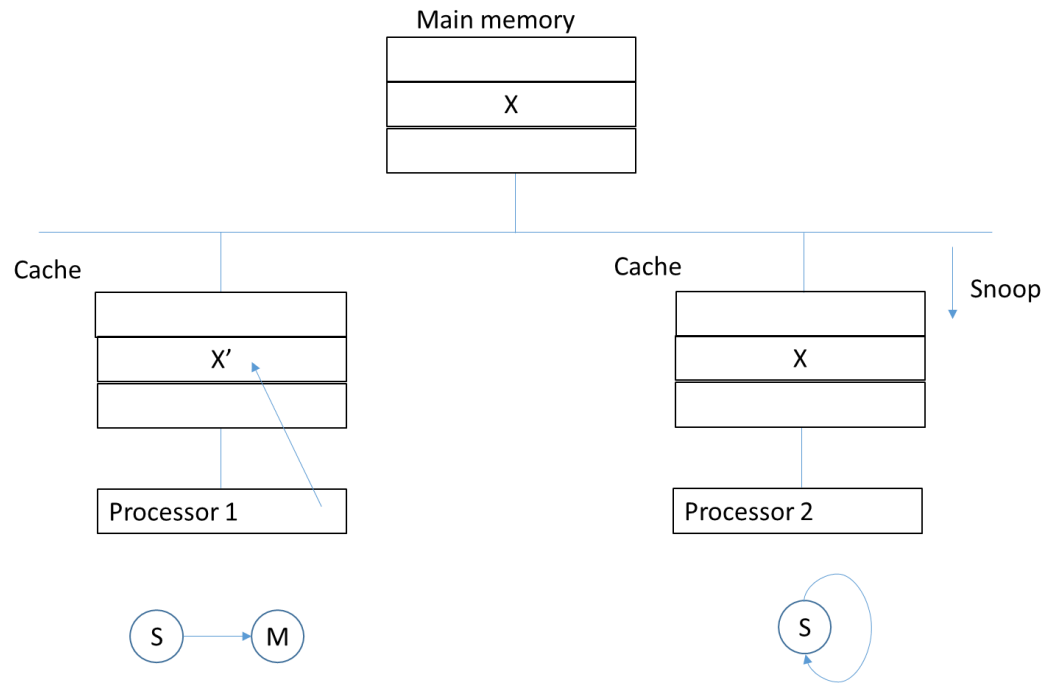
Vo Hieu Nghia

Ex1:

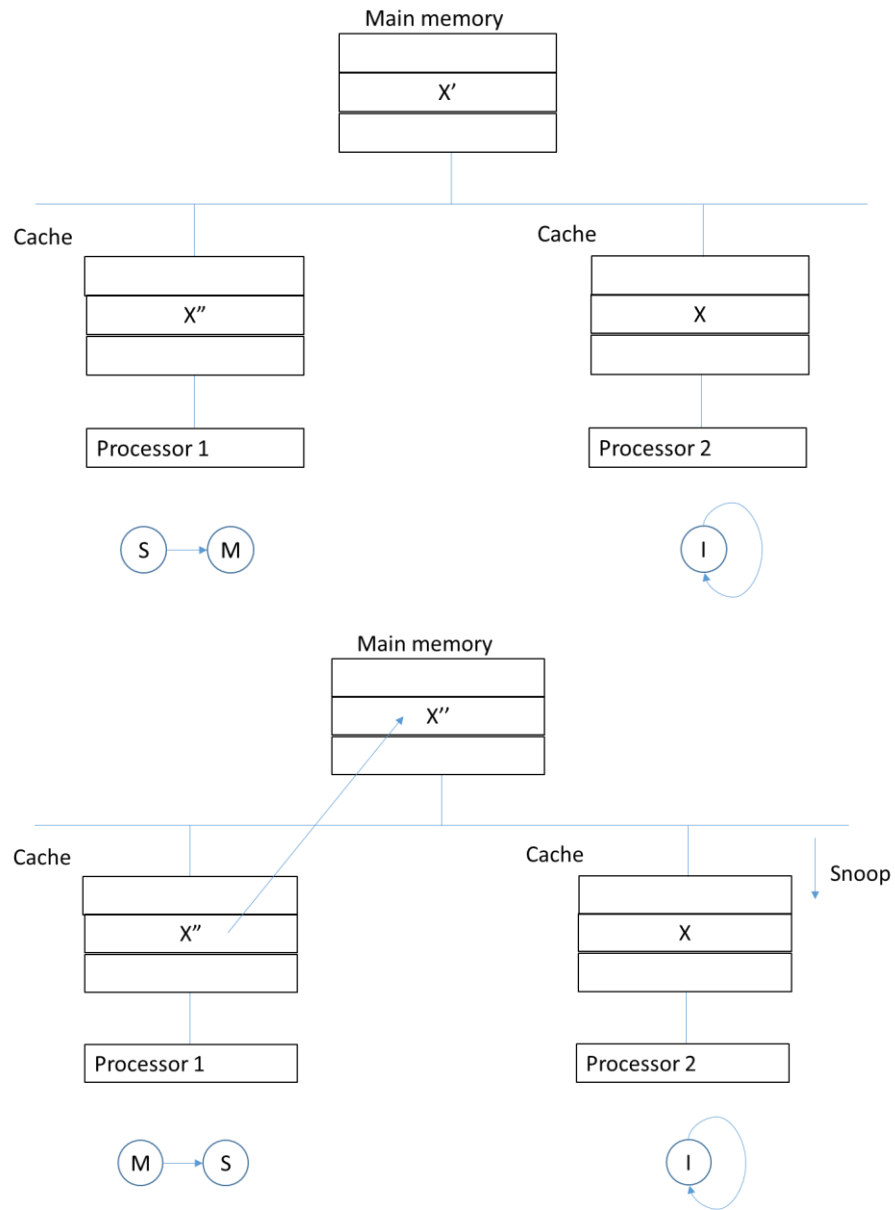
1. P2 reads X



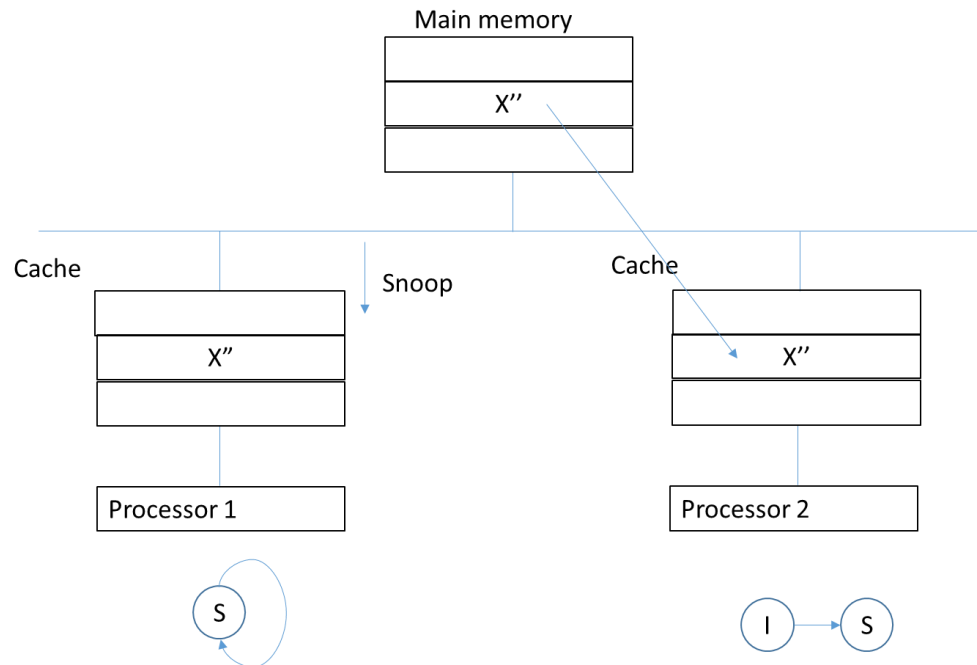
2. P1 writes to X



3. P1 writes to X



4. P2 reads X



Ex2:

1.

We have:

$$\text{MIPS} = \text{Instruction count} / \text{Execution time} \times 10^6$$

According to the exercise requirement, the equation will be replaced with symbols:

$$x = c / \text{CPI} \cdot 10^6 \Rightarrow \text{CPI} = c / x \cdot 10^6$$

If α percentage of code executed simultaneously by n processors, the new CPI is:

$$\text{CPI}' = 1/n \cdot (c/x \cdot 10^6) \cdot \alpha + (c/x \cdot 10^6) \cdot (1 - \alpha)$$

The new system MIPS rate is :

$$x' = c / \text{CPI}' \cdot 10^6 = n \cdot x / \alpha + n \cdot (1 - \alpha)$$

2.

$$N = 16, x = 60, x' = 540 \Rightarrow \alpha = 0.95$$

