Exercises

**#11.5** “ As described in the text, the PCI-Express bus consists of thirty-two “lanes“. As of January 2009, each lanes is capable of maximum data rate of 500 MB per second. Lane are allocated to a device 1,2,3,8,16 , or 32 lanes at a time.

Assume that a PCI-Express bus is to be connected to a high-definition video card that is supporting a 1920 x 1080 true color (3 bytes per pixed) progressive scan monitor with a refresh rate of 60 frames per second. How many lanes will this video card require to support the monitor at full capability?”

Sol: the data rate of the video connection is:

byte / second is 1920 \* 1080 pixels \* 3 bytes / pixel \* 60 frames / second = 373 MB / second

Then, one PCI-Express lane can handle this data rate.

**#11.7** “How many PCI-Express lanes are required to support a 10gb per second Ethernet card?”

Sol: PCI-Express \* 4 (4lines) are required to support Ethernet card of 10gb per second data rate.