Batch: A3 Roll No.: 16010121051

Experiment / assignment / tutorial No._____

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of the Staff In-charge with date

TITLE: Study of PCI and SCSI.

AIM: To Study and learn PCI and SCSI

Expected OUTCOME of Experiment: (Mention CO/CO's attained here)

Books/ Journals/ Websites referred:

1. **https://www.techopedia.com/definition/8815/peripheral-component interconnect-bus-pci-bus**
2. **https://www.techopedia.com/definition/331/small-computer-system interface-scsi**
3. **http://www.csun.edu/~edaasic/roosta/BUS_Structures.pdf**
4. W.Stallings William "Computer Organization and Architecture: Designing for Performance", Pearson Prentice Hall Publication, 7thEdition. C.

Pre Lab/ Prior Concepts:

Microcomputer buses which communicate with a peripheral devices or a memory location through communication lines called buses.

The major parts of microcomputers are central processing unit (CPU), memory, and input and output unit. To connect these parts together through three sets of parallel lines, called buses. These three buses are Address bus, data bus, and Control bus.

Address Bus:

The address bus consists of 16, 20, 24, or more parallel signal lines, through which the CPU sends out the address of the memory location. This memory location is used for to written to or read from. The number of memory location is depending on 2 to the power N address lines. Example, a CPU with 16 address lines can address 216 or 65,536 memory locations. When the CPU reads data from or writes data to a port. The port address is also sent out on the address bus. This is unidirectional. This means that the CPU can send data to a memory location or I/O ports.

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Data Bus:

The data bus consists of 8, 16, 32 or more parallel signal lines. The data bus lines are bidirectional. This means that the CPU can read data from memory or from a I/O port as well as send data to a memory location or to a I/O port. In a system, many output devices are connected to the data bus, but only one device at a time will be enabled to the output.

Control Bus:

The control bus consists of 4-10 parallel signal lines. The CPU sends out signals on the control bus to enable the outputs of addressed memory devices or port devices. Typically control bus signals are memory read, memory write, I/O read and I/O write. To read a data from a memory location, the CPU sends out the address of the desired data on the address bus and then sends out a memory read signal on the control bus. The memory read signal enables the addressed memory device to output the data onto the data bus where it is read by the CPU.

PCI Bus

Peripheral Component Interconnect (PCI) is a term used to describe a common connection interface for attaching computer peripherals to a PC's motherboard.

A PCI bus lets you change different peripherals that are attached to the computer system. Usually, there are three or four PCI slots on a motherboard. With PCI, you can unplug the component you want to swap and plug in the new one in the PCI slot. The PCI bus used to come in both 32-bit and 64-bit versions.
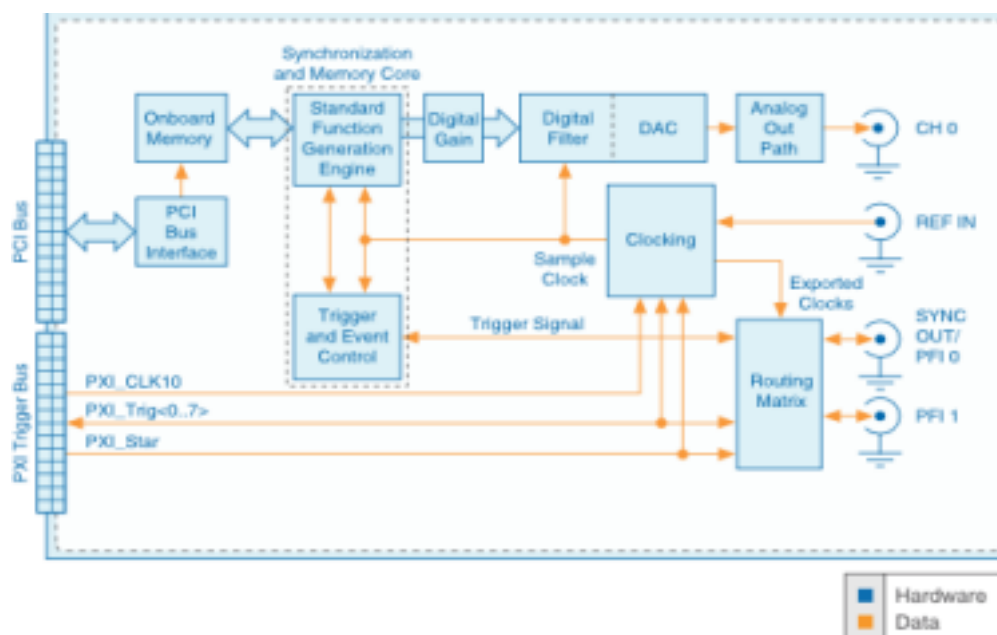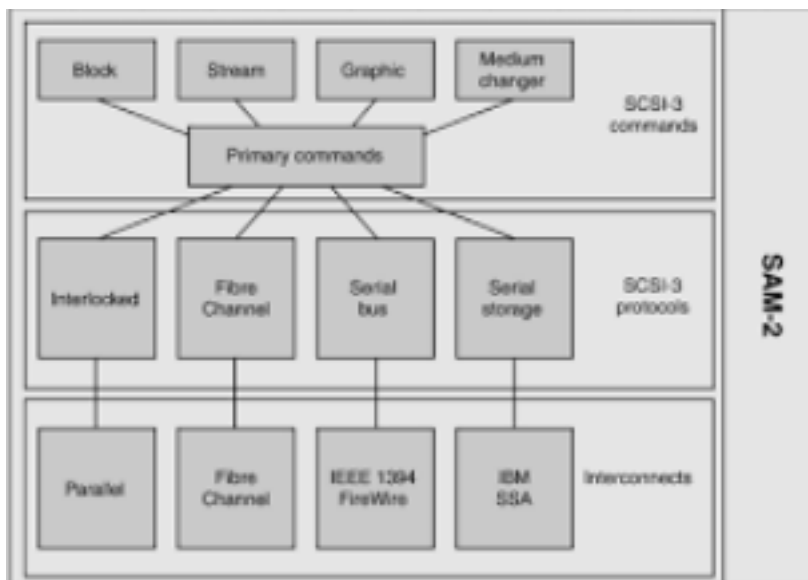
SCSI bus:

SCSI is standard electronic interfaces that allow personal computers to communicate with peripheral hardware such as disk drives, tape drives etc.

There are 3 types of SCSI

SCSI 1: It's the oldest type. It doesn't come in much use now. However, some scanners still use it.

SCSI2: It's called the fast SCSI. Data transmission rate is promoted. It can connect 7 peripherals to it.

SCSI 3: It is also called UltraSCSI, which had a faster synchronous transmission rate. This SCSI version uses 68-pin interface and it is mainly used in keyboard. The typical characteristic of SCSI-3 is largely increasing the bus frequency and decreasing the signal interference to enhance the stability.

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Post Lab Descriptive Questions

Q1. Differentiate between PCI and SCSI Bus:

PCI BUS SCSI BUS

PCI BUS	SCSI BUS
Peripheral Component Interconnect (PCI), as its name implies is a standard that describes how to connect the peripheral components of a system together in a structured and controlled way.	SCSI is standard electronic interfaces that allow personal computers to communicate with peripheral hardware such as disk drives, tape drives etc.
PCI bus was created by Intel in 1993. PCI bus can transfer 32 or 64 bits at one time. PCI bus can run at 33 Mhz.	It is a high performance bus which is used for fast disks, scanners, and for devices which require high bandwidth. It has a data rate of 160 MB/s.
Typical bandwidth is 80 m/s	Typical bandwidth is 1.5 to 40 m/s
Bus type is Backplane	Bus type is I/O

Q2. List two applications each of PCI and SCSI Bus:

Applications of PCI bus:

· Designed for multiprocessor system and high performing peripheral. This include audio, video system, network adapters, graphics and accelerator board, data storage collectors
· Because each PCI design is unique, programmable logic devices provide an ideal solution for PCI design
· PCI has replaced ISA as the bus of choice in new desktop and industrial PCs. With the PCI bus, high-performance, low-cost, and convenient PCI based image processing and data acquisition solutions are at hand.

Applications of SCSI bus:

· SCSI is a multi-task interface with bus arbitration function. Multiple peripherals hung on one SCSI bus can work simultaneously. And SCSI devices have equal possession of the bus.
· SCSI interface can transmit data synchronously and asynchronously. The synchronous transmission rate reaches 10MB/s, and the asynchronously transmission rate reaches 1.5MB/s.

Date: _____ Signature of faculty in-charge