National University of Computer and Emerging Sciences



Assignment 08

PROGRAMMING FUNDAMENTALS

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**IBM zENTERPRISE EC12 I/O**

**Structure & Working:**

In Physical Appearance , zEnterprise EC12 have following measures:

* Weight = 2430 Kg
* Depth = 1.56 m
* Width = 1.69 m
* Height = 2.01m

It contain frames (2 bays).Right one includes 2 large cage, cable room and other conmponents.

Upper Cage is a processor cage, with four slots that are fully interconnected.Each book have MCM(Multi Chip Module), Memory Cards, I/O cage connections. Each MCM is a board that contain six multicore chips and two storage control chips. Lower Cage in a A frame is I/O cage,which contains I/O hardware,includes multiplexer and channels.Left Hand Z frame have internal batteries and power supplies and some support elements ,used by system managers.It also contain slots for two or more I/O drawers.

I/O drawer contains similar components to an I/O cage. I/O drawers are smaller and easily swapped in and out. Which differ it with I/O Cage.

Background configuration is that Each Processor Book support two internal I/O Infrastructures. InfiniBand for I/O cages,drwaers and PCI Express for I/O drawers. These Channels are fanouts.

The InfiniBand Connections froms the processor book to the I/O drawers and cages via HCA Fanouts,. Which has InfiniBand’s links to InfiniBand multiplexers are used to interconnect servers,communications infrastructure equipements ,strorage and embedded system.

InfiniBand Multiplexor supports other I/O technologies .ESCON supports connectivity to disks and tape and printer device. Ethernet connections provide 1-Gbps and 10 Gbps connections to a variety of devices that support this popular local area network technology.

The PCI connection from processor book to I/O drawers are via a PCI fanout to PCI switches. Examples of zEnterprise EC12 are 1-Gbps and 10-Gbps Ethernet and Fiber Channel .

Each Book Contain combination up to 8 HCA and PCI Fanouts. Each one supports 32 connections. For Total Maximum of 256 connections Per Processor Books. Every Connection controlled by Channel Processor.

**Diagram:**

PCI

PCI

PCI

PCI

InfiniBand

InfiniBand

PCI (8x)

PCI (8x)

HCA2 (8x)

HCA2 (8x)