Exhibit ZTE-CC-CMU

O'Hallaron, David R., Ph.D.
Lecture 3, 20-755: The Internet Summer 1999

20-755: The Internet
Lecture 3: Computer System

David O'Hallaron

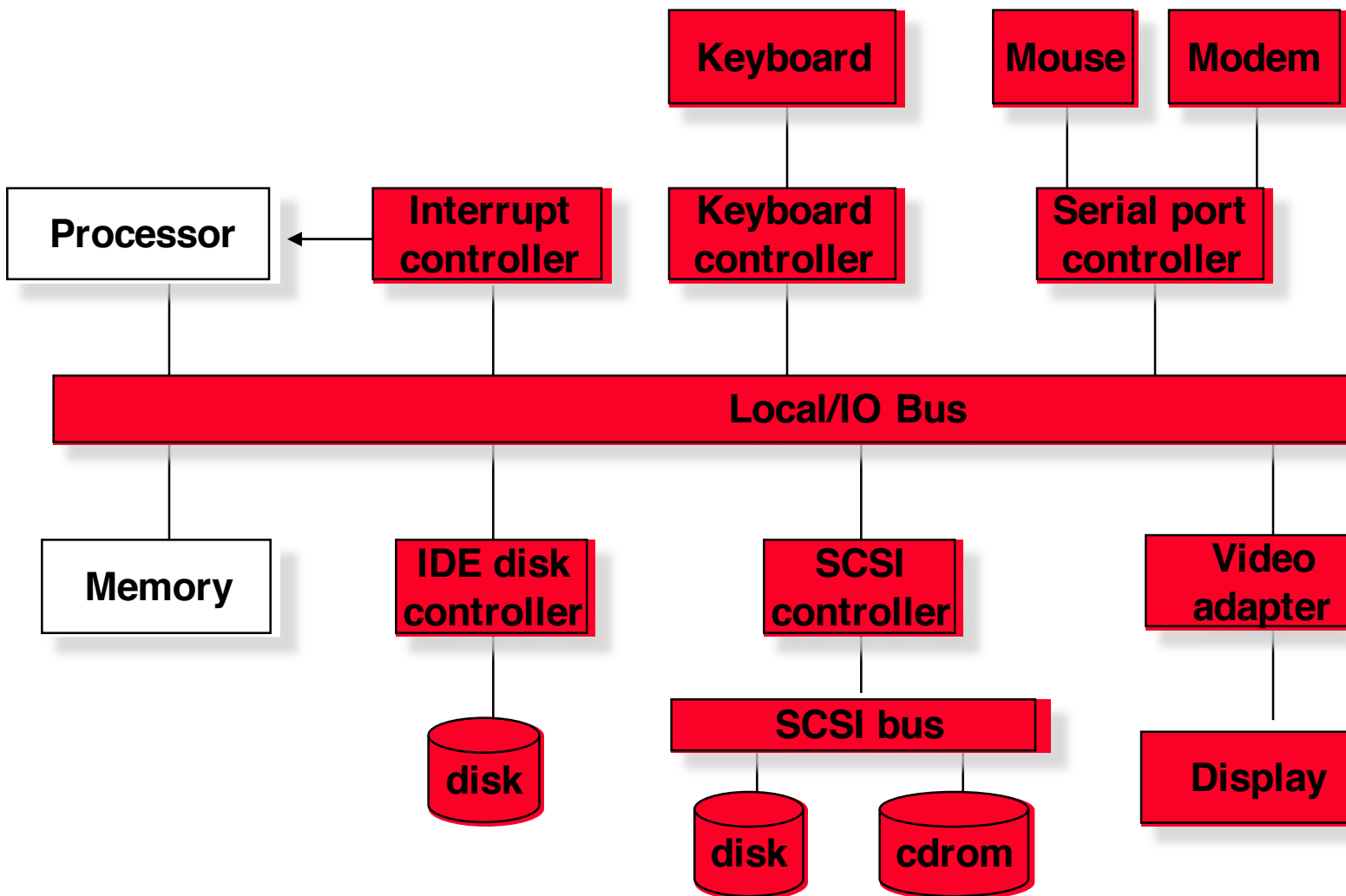**School of Computer Science and**

Department of Electrical and Computer Engi

Carnegie Mellon University

Institute for eCommerce, Summer 199

Today's lecture

- **Input/Output (I/O) (50 min)**
- **Break (10 min)**
- **Copenhefer's blunder (50 min)**
  - **Case studies in computer crime and forensics**

The I/O subsystem (except the network)

Bus

- **A bus is a shared medium that connects the processor, memory, and I/O devices**

- **Consists of control and data/address wires**
  - **control: requests, acks, type of data (address or data)**
  - **data lines: data, addresses**
  - **address lines (optional): address**
- **Only one device at a time**

control

address/dat

OR

control

address

data

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