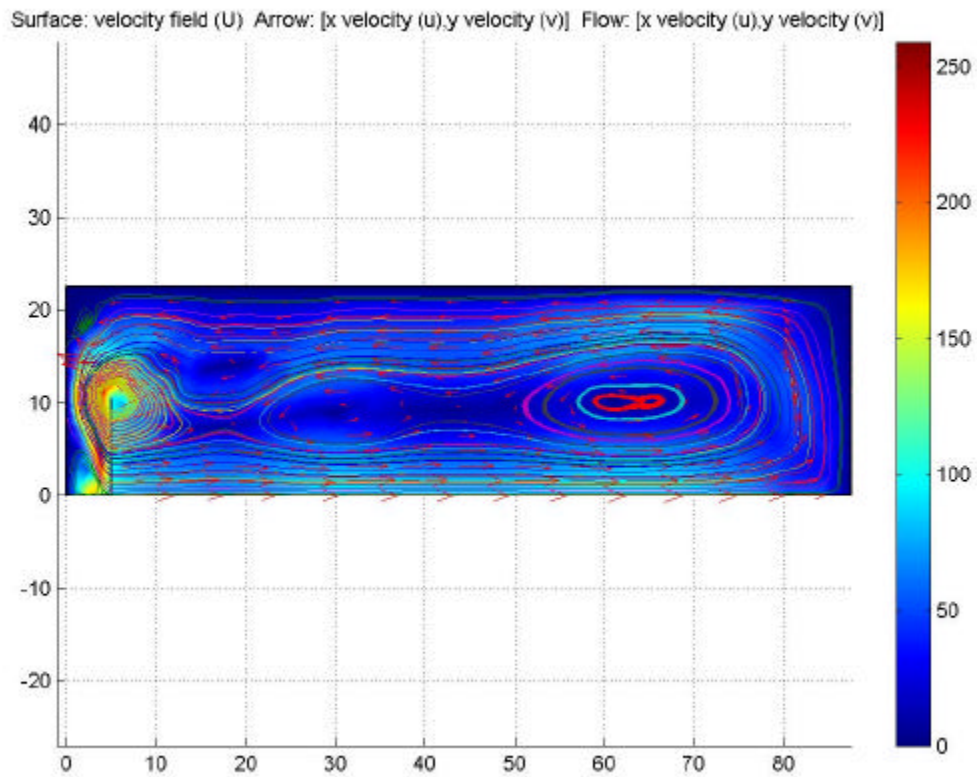


## Lecture 1.0 Computer Basics

Computers do some pretty impressive things!



CFD Modeling

Flow Sheet Simulation

Computer is a simple machine, in principle!

Add

Subtract

Count

Pass information for one place to another

At the circuit level they use Binary Math; a switch is either on or off

Instructions in Binary math = Machine Language

What is Hexadecimal math?

Computer Components

Mother Board

Memory (RAM) (128 mbyte, 256 mbyte, 512 mbyte, 1024 mbyte)

Serial Communications Bus

CPU with math coprocessor and memory cache (512 k byte)

Battery

Clock = counting circuit

Connections for

Key Board

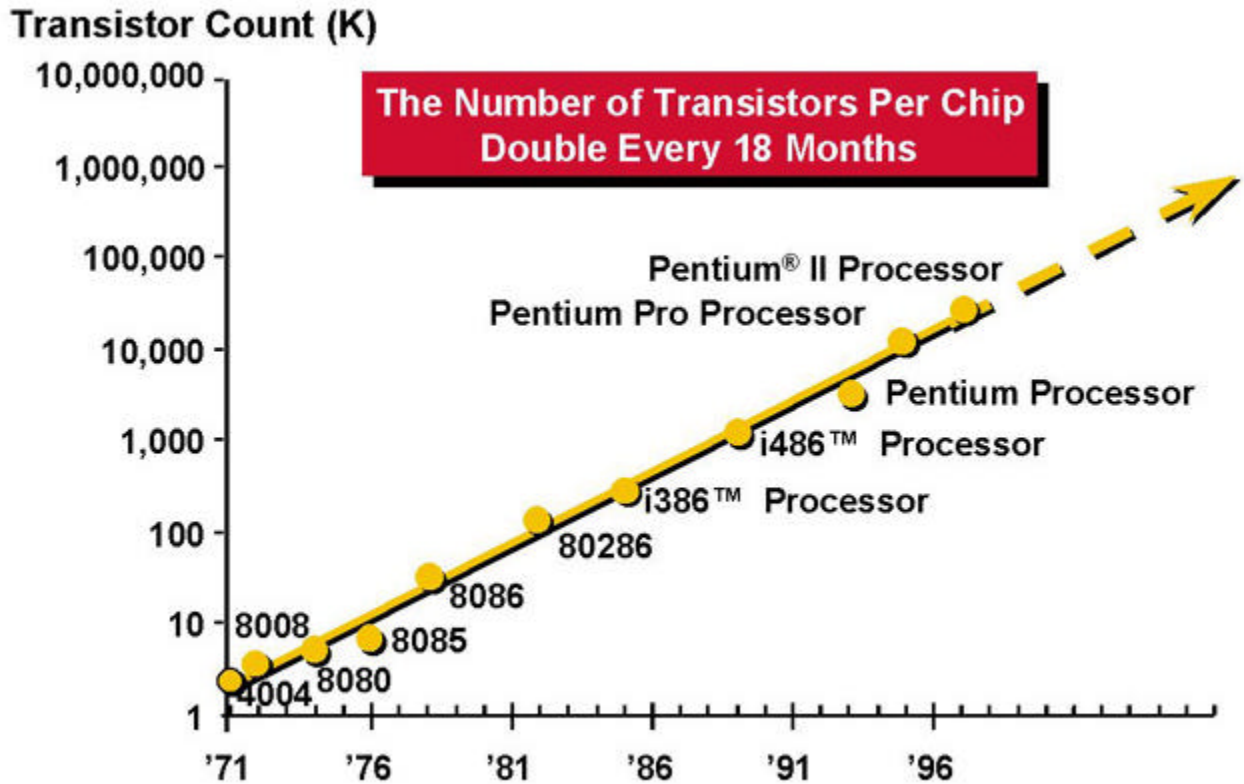
Mouse

Hard Disk Drive (20-40 Giga byte)

Floppy Drive (2 Giga byte)

Zip Drive (100 Giga byte)  
CD Rom (650 Giga byte)  
DVD (Mucho Giga byte)  
Video Card that Drives Monitor (analogue)  
Sound Card that Drives Speakers (analogue)  
Modem Card (digital)  
Ethernet Card(digital)  
A-to-D/D-to-A Card = Data Acquisition Card  
IEEE bus

Moore's Law and scaling, please see <http://developer.intel.com/update/archive/issue2/focus.htm>



**Silicon Process  
Technology**

**1.5 $\mu$**

**1.0 $\mu$**

**0.8 $\mu$**

**0.6 $\mu$**

**0.35 $\mu$**

**0.25 $\mu$**

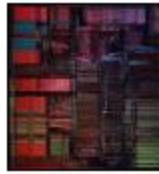
**Intel386™ DX  
Processor**



**Intel486™ DX  
Processor**



**Pentium® Processor**



**Pentium® Pro &  
Pentium® II Processors**

