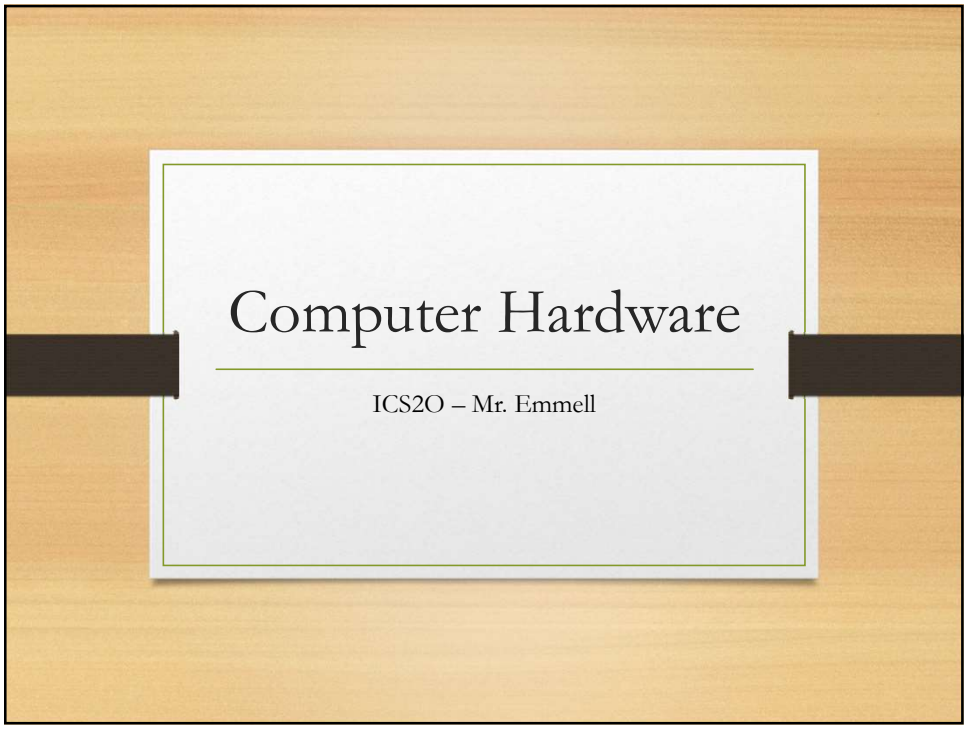
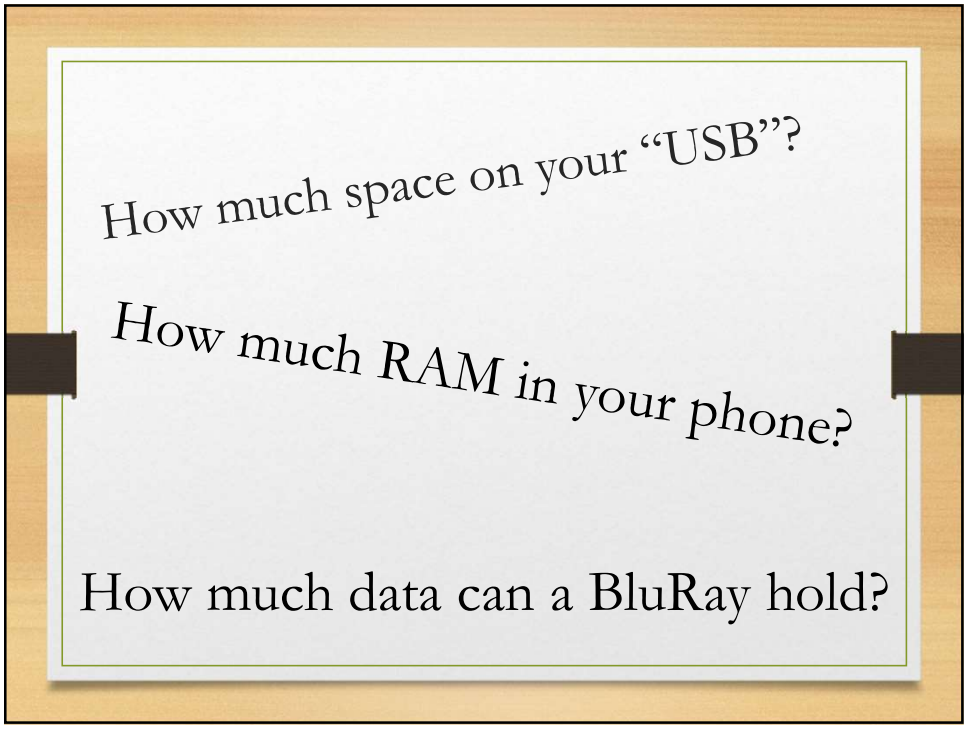
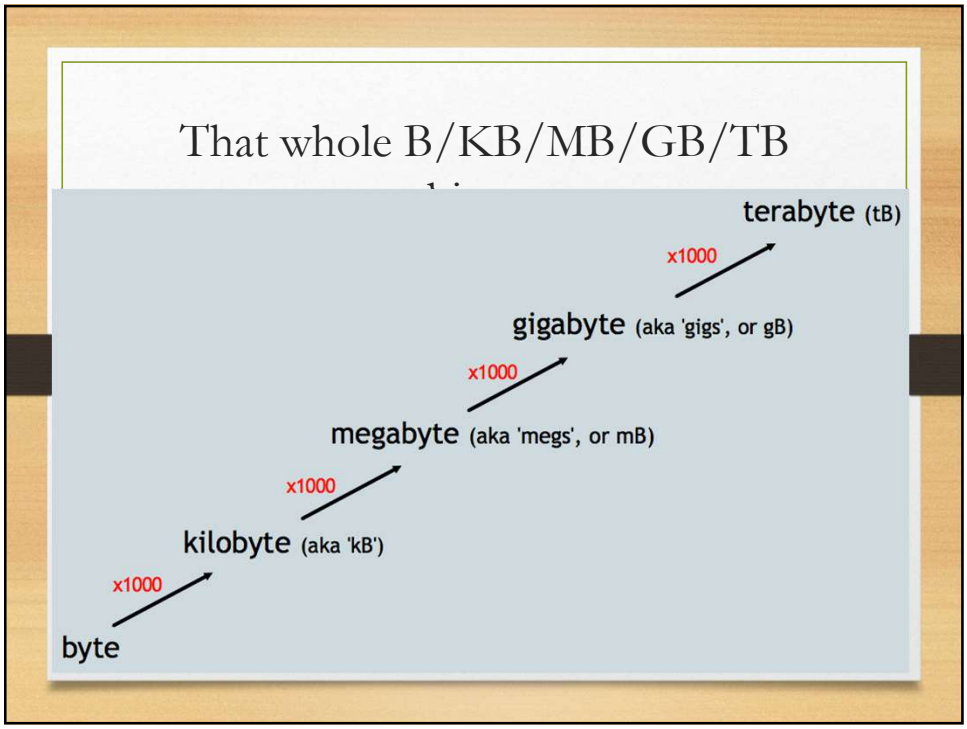

Computer Hardware
ICS2O – Mr. Emmell

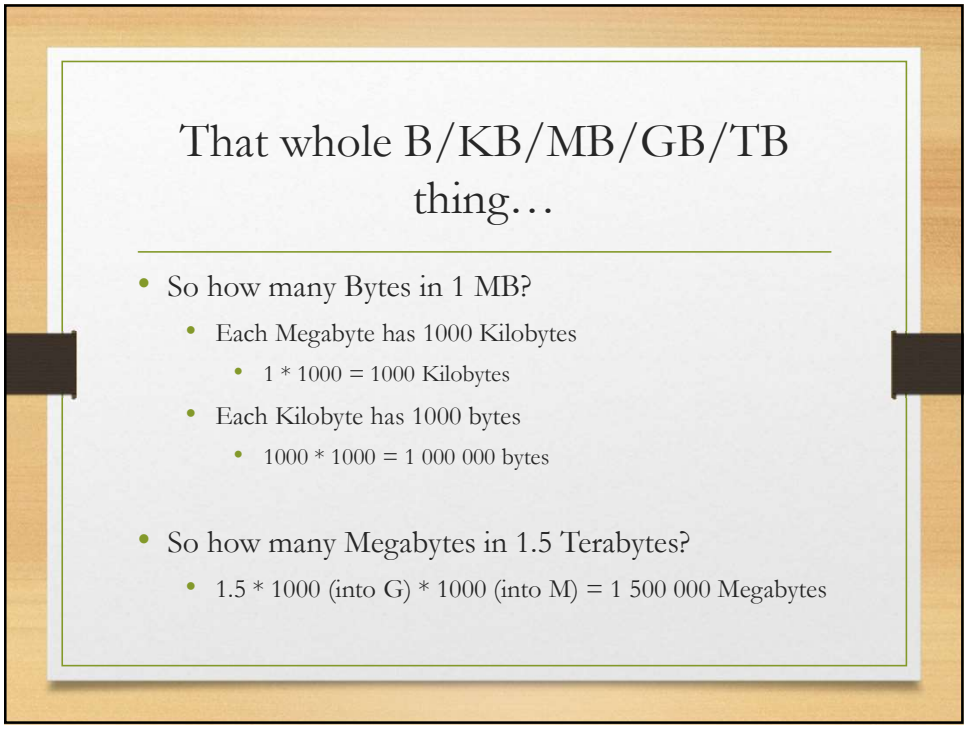
1


How much space on your "USB"?
How much RAM in your phone?
How much data can a BluRay hold?

2


That whole B/KB/MB/GB/TB
terabyte (tB)
x1000
gigabyte (aka 'gigs', or gB)
x1000
megabyte (aka 'megs', or mB)
x1000
kilobyte (aka 'kB')
x1000
byte

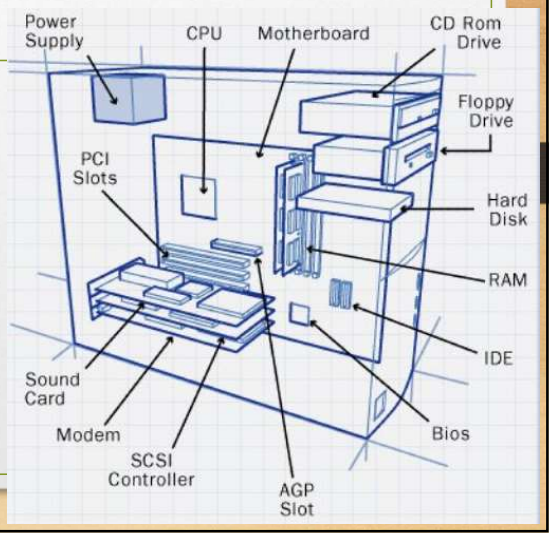
3


That whole B/KB/MB/GB/TB thing…
So how many Bytes in 1 MB?
Each Megabyte has 1000 Kilobytes
1 * 1000 = 1000 Kilobytes
Each Kilobyte has 1000 bytes
1000 * 1000 = 1 000 000 bytes
So how many Megabytes in 1.5 Terabytes?
1.5 * 1000 (into G) * 1000 (into M) = 1 500 000 Megabytes

4

Hardware

- Case
- Motherboard
- CPU
- Memory (RAM)
- Hard Drive
- Video Card
- Network Card
- Sound Card



5

The Hard Drive

- The biggest place to store information
- The only place that keeps that information when powered off

Hard Disk Drive (HDD)

Solid State Disk (SSD)

M.2 NVMe Drive

6

The Hard Drive

- Physical Interface? SATA or M.2
- **Speeds**: M.2 > SATA SSD > SATA HDD
- **Physical Size:** SATA HDD > SATA SSD > M.2
- **Available Capacities:** SATA HDD > (M.2 / SATA SSD)

MANY Different capacities!

7

Solid State vs. Spindle Hard Drive

(SSD) (HDD)

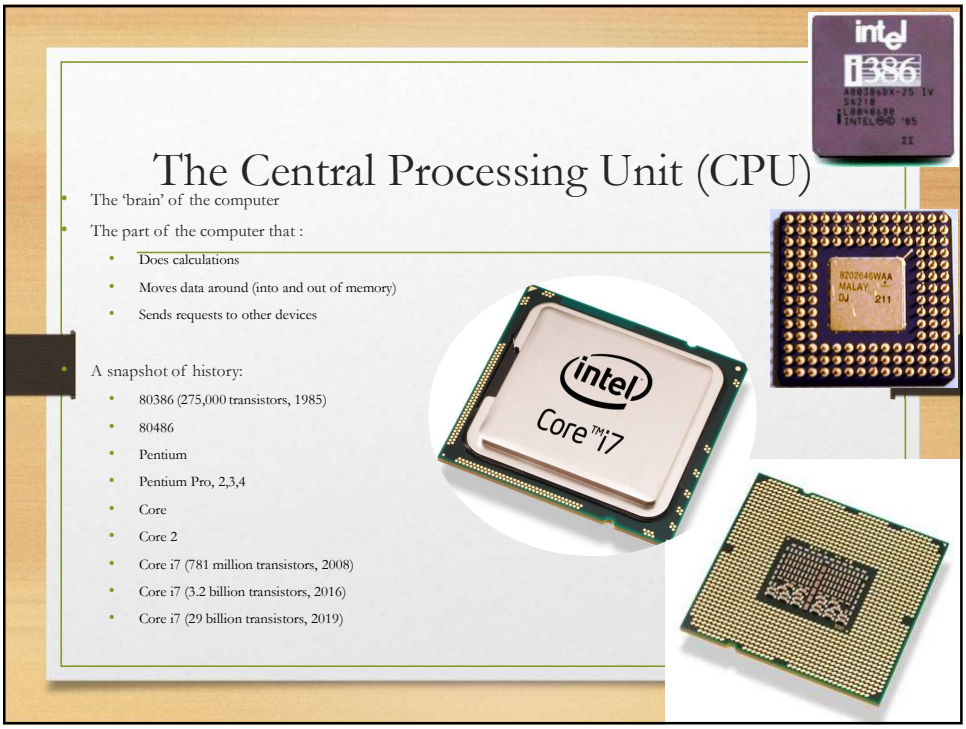
1-8TB
7200 RPM
SATA
$55-200

500GB SATA
$89

8

The Central Processing Unit (CPU)

- The 'brain' of the computer
- The part of the computer that :
  - Does calculations
  - Moves data around (into and out of memory)
  - Sends requests to other devices
- A snapshot of history:
  - 80386 (275,000 transistors, 1985)
  - 80486
  - Pentium
  - Pentium Pro, 2,3,4
  - Core
  - Core 2
  - Core i7 (781 million transistors, 2008)
  - Core i7 (3.2 billion transistors, 2016)
  - Core i7 (29 billion transistors, 2019)



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The Central Processing Unit (CPU)

Intel Core i5-9400F Coffee Lake
6-Core/6-Thread Processor Socket LGA1151,
2.9 GHz Base/ 4.1 GHz Max Turbo Frequency **65W**
Gen9 Retail Boxed
Discrete Graphics Required

$204

10

The actual MODEL NUMBER of our processor.

Made by Intel
Core i5 line
Specifically, the i5-9400F

Use this to compare against others

(CPU)

Intel Core i5-9400F Coffee Lake
6-Core/6-Thread Processor Socket LGA1151,
2.9 GHz Base/ 4.1 GHz Max Turbo Frequency **65W**
Gen9 Retail Boxed
Discrete Graphics Required

$204

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The SPEED of the processor.

GHz (Gigahertz) refers to the number of cycles per second.
2.9 GHz = 2.9 GigaHertz = 2.9 billion cycles per second

2.9 GHz Base/ 4.1 GHz Max Turbo Frequency **65W**
Gen9 Retail Boxed
Discrete Graphics Required

$204

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The Central Processing Unit (CPU)

The POWER consumed by this processor

65 Watts

Intel Co
6-Core/ LGA1151,
2.9 GHz Bas GHz Max Turbo Frequency **65W**
Gen9 Retail Boxed
Discrete Graphics Required

$204

13

The Central Processing Unit (CPU)

Means there is no graphics card built in

This system requires a separate video card

I
6
2. 65W
Gen9 Reta
Discrete Graphics Required

$204

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HOW It's Made

- https://www.youtube.com/watch?v=Cg-mvrG-K-E
- https://www.youtube.com/watch?v=SeGqCl3YAaQ

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Random Access Memory (RAM)

- The temporary working area where data and programs are stored, that have either recently been used or are currently being run.
- Much faster to read from and write to than the other kind of storage in a computer
- RAM can be compared to a person's short-term memory and the hard disk to the long-term memory.

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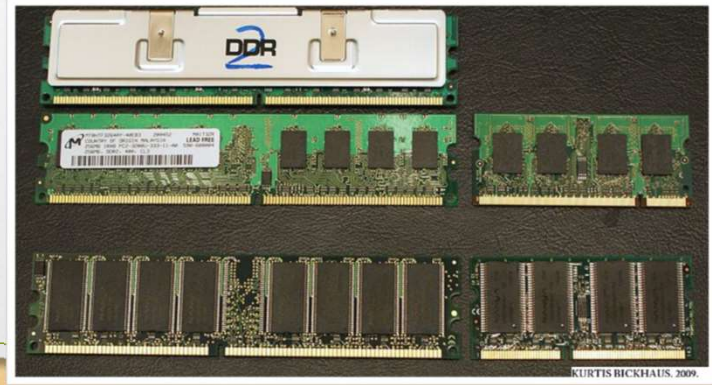
Random Access Memory (RAM)

$30-$200

- Much smaller than a hard disk.



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