5x7 NOTECARD ALLOWED

virtual memory

CACHE

7, 8, 9, 10, virtual mem, 15, 18

Quiz 1,3

Operating System:

Components

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O

O

BIOs

-What it does/Where is it located?

Steps in BIOS

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O

O

OS Management

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CPU

Definition:

Components

O.

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O

Memoru

Primary

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O

Fastest type of ram - Most data is stored in this

Secondary

What type of software managers general operation of the computer?

What does the OS not do?

Who developed the first internet? What's it called?

Len Kleinrock. What he do?

Vinton Cerf & Robert Kahn

What year did NASA and ARPANET was created?

Ray Tomlinson

Tim Berners Lee

Mark Anderson

What are the two types of architecture?

O

O

The largest number representing 8 bits is

16 terabytes is how many bytes?

The decimal range of an 18 bit word is

Hexadecimal to Decimal Convert

3EFC

1011011101 to Decimal

FDACE to Binary

ADD the fiollowing

1FF9	**101101101**
9BB1	**10011011**

Binary to Hexa

1001 1010 1111

Hexa to Decimal

9AF

DC

What's 1030 in Binary

Write 256 in Hexa

Add the following

11011	**8CD6**
10011	**5CBF**

Convert Hexa to Binary

4BAF

Convert Binary to Decimal

111111111

Chapter 4 6 7

Data Representation

1

2

3

4

5

6

7

When data and instructions are loaded into a computer, from a solid state drive, where do they load?

Compression

1

2

CPU

Components of CPU

1

2

3

4

5

6

This type of file format is proprietary, display 250 colors and does animation

Which registers activates the address line, IR, MAR, or the MDR?

1

2

3

This graphic format is NOT scalable, and cannot do actual curves

A register writes its contents to a second register, what happens to the value in the first register?

What are their decimal values?

Giga

Tera

Mega

The ability to process multiple instructions per clock cycle

Newer graphic format that replaces GIF, not proprietary

Uses math for smoother curves and resolution independent. Not good for photographs because they can't be mathematically described

The four phases of the machine cycle:

This type of RAM is much faster, more expensive, and does not have to be refreshed

RAM

1

2

O. O

O. O

3

O. O

O. O

How to calculate space of memory address?

What are types of contents a register might hold?

1

2

3

Nonvolatile Memory

1
O
O

2
O
O
O

A word size refer to

To increase the power of a computer, you would
O
O
O

The code that is multilingual in the most global sense and allows the largest number of values is

Lossy compression is best for which type of files?
O

Instruction Cycle

Given the following program:

30 - 570

31 - 171

70 - 60

71 - 250

LDA = 5 ADD = 1. SUB = 2. STO = 3

Whats the value of MAR after 30 executes?

What the value of MDR after 30 executes?

What the value of the PC after 30 executes?

What the value of the accumulator after 31 is complete?

Cache memory has how many levels?

Describe each level

Refers to a permanent program etched into a chip

The three lines of a memory cell are:

1

2

3

ROM chip that does Post-Test and load the Os kernel

CPU component of the execute cycle

3 billion pulses per second is

What are the actions done by the BIOS when booted?

1

2

3

Which is a two-way register?

What register holds the address?

What component of CPU is resoinsible for fetching and decoding phases of machine cycle?

This bus protocol has replaced PCI. Its speed increases w/ additional lines

Fastest type of drive and consists of banks of chips and has no moving parts.

One methof of i/o communication within the motherboard and CPU

Functions of an IRQ include:

1

2

3

You need to email a 1000 page documents which is over 25mb, which method of compression do you use?

This USB version has a speed of 20 gbps

40. LDA 70

41 ADD 71

What is the value of MAR after the completion of 40?

Bitmap

1

2

Raster

1

2

3

Vector

1

2

3

4

Silicon Video

What main element silicon is made?

What silicon property is revered?

What's Moore's Law

Why they wear bunny suits during production?

How pure is the air?

What is photolithography?

Little Person Calculator

What is the output of the program below.

Add = 1 Subtract = 2 Store = 3 Load = 5

901 = Input 902 = Output 000 = Stop

00. 901

01- - 399

02 - -901

03 - -398

04 - -299

05 - -902

06 - -000

What are the three uses of registers?

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O

O

During the boot process, if there has been a change in the amount of RAM since the last boot up, what would the BIOS update with this change of configuration?

Program counter

Mem Loc 65: 590 (Load 90)

Mem Loc: 66 192 (Add 92)

Mem Loc 67: 390 (Store 90)

Mem Loc 90: 111

Mem Loc 92: 222

PC

PC > MAR

MAR > MDR

MDR > IR

IR > MAR

MAR > MDR

MDR >

MDR > A

PC + 1

END

PC

MAR

MDR

IR

A

CISC VS RISC

CiSc

O

O

RiSc

O

O

BUS directions definitions

Simplex

Half-Duplex

Full-Duplex

What is Multipoint configuration?

What is Point to Point configuration?

What is replacing the FSB (Front Side Bus)?

Name four registers in the CPU that is responsible for the instruction cycle

What does the width of an address bus have to do with the speed of a computer?

How to calculate bus bandwidth

Why does increasing RAM improve computer performance?

List bus Protocols

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List Bus Protocol Characteristics

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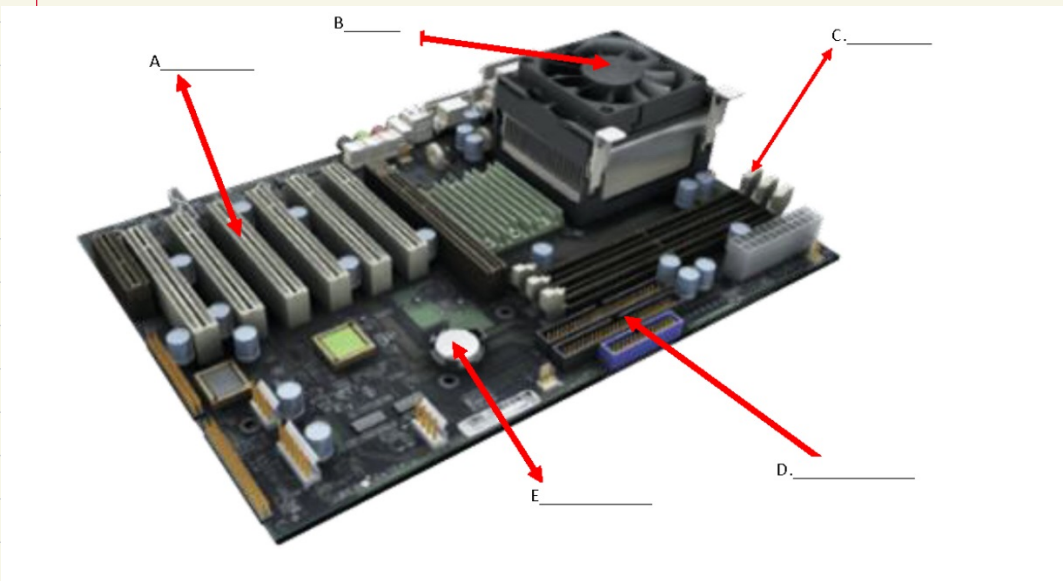
Whats locality of reference?

Whats the difference between write through and write back when contents change in the cache?

Why is cache faster than Primary Storage (RAM)?

Identify the motherboard



What are three types of memory?

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If you drop a USB drive into water, what would happen?

If there was no OS, how would the computer work?

Cache memory holds what type of data?

The method of transferring data one word at a time from the CPU, such as keyboards, mice, and some harddrives

DMA assign lines, which are used by the hard drive to

The number of bits used to store information about each pixel

What are the types of broadcast buses?

O

O

This protocol has the ability to be put in the port either right-side or upside down

Putting file parts of a file on disk in a contiguous matter

The supervisor files of the OS

Device drivers and xxxxxxxxx are the same

Microprocessors are made from?

This accounts for the disparity in size of a platter and the memory capacity

When the second instructions begins before the competition of the first instructions

What is a reason to generate an interrupt?

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The mechanism which facilitates the COU returns to the place after servicing an interrupt

Instead of formatting a hard drive into piexshape divisions, a more effective format is

Whats the relationship between the instruction cycle and computer speed?

Whats the issue with polling vs having interrupts?

How does clock speed have to do with performance?

How is the DMA useless without interrupts?

Quiz 9,10

What is an I/O device?

Examples

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O

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Programmed IO

Definition

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Uses

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O

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Interrupts

Definition

Example

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Interrupt Driven IO

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Servicing interrupts

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Draw the interrupt cycle

Vectored Interrupt

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Polling

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DMA - aka

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In order for DMA to work, the _____ is required

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IO Controller Functions

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Bus and Port examples

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Optional

Thunderbolt / Usb

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SCSI aka

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Platter

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Label parts of a platter

Tracks

Sectors

Spins

O

Metal Filings

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Types of Secondary Storage

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SATA M.2 vs NVMe M.2

Similarity:

Difference:

Visuals

SSD

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O

Magnetic Disk

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Partitions

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Disk layouts

CAV

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CLV

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Multiple Zone aka

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Defragmentation

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RAID

O

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Levels:

Mirrored RAID

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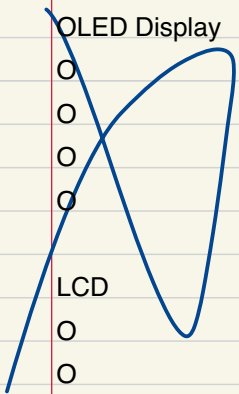
O

Striped RAID

O.

O.

OLED Display



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LCD

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Virtual Memory

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Paging

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Logical VS Physical

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Shared Pages

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Demand Paging

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Thrashing

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Kahoot

Represents a piece of a process that can be executed independently of other parts of the process

Refers to the hardware which maps logical page addresses to the actual physical frame

If a logical address is on page 8, mapped to frame 10 with a fixed size of 4096 and offset = 30, then what is its physical address?

In virtual memory, for each program, this is created to track actual memory locations of logical pages

Since many interrupts exist to support I/O devices, most of the interrupt handling programs are also known as

The three type of user interface include

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Virtual memory refers to

Memory Management include

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Without an operating system…

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When memory is divided into frames, the address within the frame is called

Refers to the situation if all the pages in main memory are in use, the OS must choose a page to replace

Refers to over accessing secondary storage because of insufficient memory, which causes

A process is

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Process Control Block

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When a change in cache memory is written in RAM immediately is called

High Level Formatting

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An interrupt is generated for the following reasons

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DMA has specific assigned lines and is used by hard drives to

High speed cache set up page table entries to keep track of recently used translations called……

This refers to the number of bits per inch. It explains how a large platter which can have the storage capacity of 5 megabytes versus a very small hard drive which can have the very large capacity of 5 terabytes!

Windows NTFS file master volume table refers to…..

Refers to the divisiom of the physical disk as independent sections. It can either be physical or a logical division.

A virtual memory system has a page size of 2048 bytes. Find the physical address of 65600 bytes

Virtual Page Number.	Frame number
0.	
1	2
2	
8	30
12	5
16	20
32	10

Final

FINAL

Final Review Kahoot

The year the internet is born

The developer of TCP/IP

Port 25 refers to this service……

Refers to over accessing the physical drive of one's computer. Is usually the result of not enough primary storage.

802.11 refers to which protocols?

Refers to one way transmission

Email use this protocol because it guarantees delivery

Nodes on LAN all have this table mapping IP and MAC addresses.

This layer deliveries messages to host to host

This layer has frames as its PDU

The most secure and fastest media used by the military

Loss of electrical signal strength

Refers to the ability to process multiple instruction per clock cycle

Unique 12 digit hexadecimal number which is the physical address of each node

In a virtual storage system, the OS creates a x x x x x x which maps the pages to the frame

Guided single copper media which supports up to gigabit ethernet

A broadcast protocol at the datalink layer

Word size refer to

Refers to the first router on the LAN

Interrupts are used for

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An example of volatile memory is

PDU used by the network layer

The newest wireless protocol

When memory is divided into frames, the address within the frames is calles

Refers to the hardware which maps the logical page addresses to the actual memory location

Cache memory holds

The method of transferring data one at a time from slower devices such as a keyboard to the CPU

This type of formatting creates zone around a track instead of pie-shaped sectors

Review sheet

Port Description

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What protocols does application services use?

What are the layers of TCP/IP? What do they do?

What are the protocols, hardware, and PDU of each layer?

States of processes during CPU scheduling

Network physical topologies

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Calculate Propagation Delay and transmission delay

Physical qualities of UTP, coax, fiber cable

What is the difference between baseband and broadband?

Why is port number necessary?

Why is packet switching an effective method of data transfer?

What the difference between authoritative user and local DNS server?

Why is a default gateway needed?

Identify elements in IPCONFIG command

Calculate datagram travel time

How. Does paging and swap file increase virtual memory.?

LAN topologies

Seven major types of OS

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