B39PP_omkan Page No. Computer Architecture Assignment . 1 what are the components of computer 9 Before the data gets loaded an computer is formed by using different hardware components winder proming : HDD (Hardoisk), CD, Flogor 16 Microprocessor 3 022 2. Math co-processor [ALU] Storage Devices & A A Primary B. secondary Toolbhain is considered as as of 4: 6 GPU [Graphics Processing Unit] 5. 03 Input Devices at mous B. keyboard Output Devices Bon A. consolent Bon Printer 7. Motherboard Bus: Minds AST Address ABUS Amongones B. Data Bus rotibe 200 ControlorgBus 1 8041,63 . unperposed 2. what sare the types of storage devices? harddisk with name .c. - Storage Devices are classified into two parts: Primary storage pevices B. Secondary Storage Devices Storage A Primary storage to devices is The devices which are accessible to microprocessor are called primary storage haman readable essives FOR eg: RAM ROM

Page No.			
Date	T	T	

B Secondary storage Devices

- secondary storage Devices are used to

Store the data permanent purpose.

- Before the data gets loaded on

Secondary memory (it's initially on

primary memory.

- For e-g: HDD (Harddisk), CD, floppy

SSD (Solid State Drive)

3. what is mean A *86201Too/chain 9.78

Toolchain is considered as set of

software which are used to convert

human understandable program into machine

understandable program

- components wof x-860A. Toolchain: 68

1. Editor: program uses editor to write

program.

Arktowritting file gets saved an

harddisk with name 'c.

harddisk with name c.

2. compiler pre- processor - preprocess access the

the file c and generates expanded

version of c file.

Primary storage pevices

The file created with pre-processor

human readable.

- i stands for intermediate code.

Pilen C	Page No. Date
	3. compiler The output of preprocessor 15
	provided input as to compiler.
	compiler is a software which converts
65	the program from one language to
	another: : answers whom The
	- The program is converted into
.,	- The program is converted into human understandable to machine
	dependent that is assembly language.
	- The created file having extension
	4. DHI - Detas notes mas.
	5. Elsp stack opinter
	4. Assembler The output of compiler provided
	to Assembler
	- Assemble is responsible to convert [prog]
	the proofrom machine dependent format to
· 14	machine understandable format
	the the bod output of of sassembler file with
nt as	3. CH/CL extension returbs truos 12/42 .8
tata ta	soits of Italis sings binary but not directly
	executable. Pariog Habet 92
	6. 39.
	5. Linker - Linker sissingesponsible to link
	the thooby file generated by assembler &
	its dependent obj file-
(n)	the transmit agent rates output file conthe exe
d scaliforns	788 Tolchain. Cie colinoisantus eprocessor.
	assembler, linker, loader.
808	6. Loader Loader loads exe file from
	E Harddisk or tooit RAM: ai benings
	- To run / execute any application it
	has to be loaded on RAM.
	- when its loaded on RAM it consider as process. And gets executed with as.

	Page No.
	Date
34.	what are the types of CPU registers?
	explain use of each cpu register.
Harden	the delication of the state of
	multiple registers on
	their requirement:
	the both of mornood
	AH /AL Arithmetic / Accumulator Reg.
unae.	2. BHIBL Base registers
9	3. CHICL - count register
	4. DHI DL - Data register
	4. DHIDL - Data register 5. SP - Stack Pointer
ded	6.9 BROMOD to Base Pointer raidmozza 14
	7. SI - Source Index
100007 to:	80 DI sidising Destination Index
Pot to	the profino machine dependent forma
	1. AHIAL - used to perform anithmetic tasks.
94	2. BHIBL assed to hold base address
	3. CHICL- count register cused for count as
YH.	3. CHICL count register used for count as
	5. SP- Stack pointer sldatus exs
	6. BP.
	7. SI - suit gindicates source . Yahari
<u> </u>	8 da Os- positionindicates destination
	its dependent obj file-
5- 5	Explain working of each component from
	+86 Toolchain. i.e editor preprocessor, compiler.
	assembler, linker, loader.
C)	6 Londer Loader leads exe file to
	Explained in Question number 3.
45	- To run / execute any application

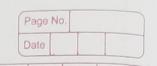
had to be roaded on RAM:

asked to RAM it

as process. And gets executed

confider

- working of each component from X86 Toolchain: Promen wises to each one memory? programma - cache memory is a type of superflut sup source designed Demois J. Fourbisso doides more efficiently preprocessor [Demoi] a Types of eache medory: compiler [Demo asm] · It's rocated on the processor chip alway Assembler [Demo: obj] the processory Unker [Demo. exc] 2. secondary cache: - This rapport present between the primary house upw. 1 brocess Microprocessor Explain each step of below diagrams ×86 Toolchain what are the task of operating system. 6. - Task of as: 1. file management 2. process management 3. Memory management 4. CPU scheduling 5. Hardware Abstraction.



are the types of cache memory?

- Cache memory is a type of supur-fost RAM
which designed to make a computer ordevice
more efficiently.

- Types of cache memory:

1. primary a cache: 33 91900

200 7:10

- It's located on the processor chip always.

Besides: its access time is comparable to

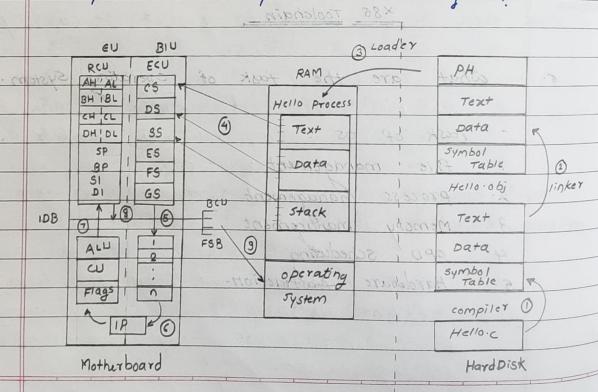
the processor

2. secondary cache:

Microprocessor

- This memory present between the primary cache a main numbery.

8. Explain each step of below diagrams



Page	No.		
Date			

save the program with extension .c.

· step 2 · The we forware file to [pre-processor. compiler Assembler] compiler

- In our diagram compiler internally contain preprocessor, compiler, Assembler. The output of compiler is with extension obj which is in binary

format.

the inferration

Text contains the compiled spisal antirco su dinstructions of program in binary

o Data: pata section contains MAR MAR no be memory rfor global variables provided of stooms of in program too 21

ansord was so don Symbol Table: 1+0xis a table which contains the info about the symbols (variables) which are used in program.

step 9 - In microprocessor there is no sufficient step 3 ... we pass this obj. file towards linker. visition ton how the stinkers link them obj file with other dependent objetiles

morrow to and The slinker creates exe file which is considered as executable sile.

. Text segment easied into as code organist step 4 - The executable created by linker stored inside the Hardbisk. For execution it must If all above IMAN Faino tod to (extra sea)

Loader is responsible to load this file to RAM Savitages bases

Step 5 = Inside the exe file the primary

Header is added (PH)

- It contain information of exe file.

step 6 - when its loaded on RAM it considered

The process gets loaded into RAM is devided into three parts Text. Data,

step 7 - Stack section contains the information
about function which are written inside
our program

is not responsible to execute the process due to which we pass process to the microprocessor.

step 9 - In microprocessor there is no sufficient

memory like RAM due to which direct

loading of text data, stack not practically

possible.

is divided into segments.

- Text segment copied into cs (code segment)

- Data segment into Ds (Data Segment) &

Stack into SS (Stack Segment)

- If all above gete four to SS (extra SCA)

used, if Es also fall the FSA (B is used respectively.

into instruction queue: into instruction queue. single instruction fetched at a time & forwarded for execution purpose. - IP (Instruction pointer) responsible for this): Step 12 - Now Instruction gets [loaded] stored inside CPU registers. These are [CPU registers]: 1. AHIAL - Arithmetic Registers. 2. BH/BL - Base register 3. CHICL - count register contact Asset 4: DH / DEXOT pata Dregister. todas 5. SP - Stack pointer TAR of 6 BP = Base pointer Holes 51 Slag - Source Indexinos Ti 8. DI - Destination Index Inside reg. Instructions gets executed/performed. step 11 - instruction forwarded to ALU if instruction is related to arithmetic function otherwise towards the cu c control unit) - Flags indicates internal status step 13 Now output will forwarded towards the os operating System with the help of IDBI Internal Data Bus) - After getting output OS will display the output on Jereen.

- Punctions which are withten in

Page	No.	
Date		

9 what are the contents of Primary Heading

Step 12 - Now instruction gets Moaded I stored

- These are [CPU registered]:

1. AH / AL . ATTHOREME REGISTERS

19 Elastruction Pointer) respondible for

- primary Header contains the infor. mation of executable file.

- what is mean by text Data Stack Sections
- when loader loads exe file to RAM it contains three parts as: 10 pestination intended. In the performed.

5. SP - Stack DOINTER

- 3. Ustacket believeret doesnithing 11 9340
- 1. Text Section contains information about compiled instruction of program.

is related to arithmetic function of perwise

- 2. Pata section contain information of global variable which are written in program. Mad langer 18,01
 - 3. Stack Section contains information of -functions which are written in program.