## Virtual Memory:

> It is a Technique used to Increase the apparent size of the main memory.

It uses the secondary storage to extend the memory in the main memory.

In the main memory, when a program is not nompletely fit to the main memory. It divided into segements.

The worrently executed expensents are kept in the main memory and the remaining segements care kept in the secondary memory such was hard disks.

> It an executing program needs a segements which is not university is the required segement is copied from the secondary storage device.

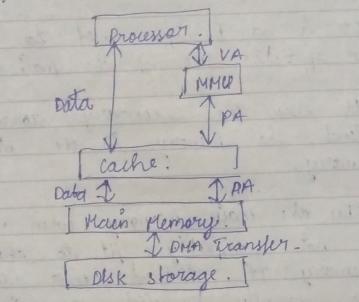
secondary storage device.

> when a new segment is copied from

the main memory it should replace the
memory abready exists in the main
memory.

The oddress that processor issues to ours when the instructions or data in called virtual address. Thus address are translated into physical address by the combination of hardware & software components.

Diagram:



the Kemory Kanagement unit ionshols
the Virtual Kembry system. It
translates the Virtual Address into
physical address.

\* A simple method to translate the virtual address into physical address into physical address is to assume that all the programs and data is semposed to the fixed length called pages:

in the	L Direct	ebolo !		C. C.II	ha
05 5		0		PI	P2 7
	P	1		0	0
	P+(0)	2	Market .	5011	1
	P2(1).	3	1	12,	2
	Page tall of Pa	43	عانط	3	]3
	il lester	5	10.	seconda	ונות
1,1	Page table of P2.	6,	- 44	Memo	0
	Main Memor	w!		10110	7.

Address Translation: Fage Table registers Virtual Address

Virtual page Number | page effect |
2011

Valid Por Marine you Page Table. If o then page is not present is the Memory. physical Page number. Page offset, physical address. Touristan Lockoff & Buffer: Page Fault: This event is secur when the needed page is not journd en the

TNPL

Page Table: Table which contains the translation of Virtual to physical address in a Witteal memory

Swap spall :

The space of ethe disk is reserved for that virtual memory space of a process.

phrty Bit !

Page Modify? yes

Reference Bit:

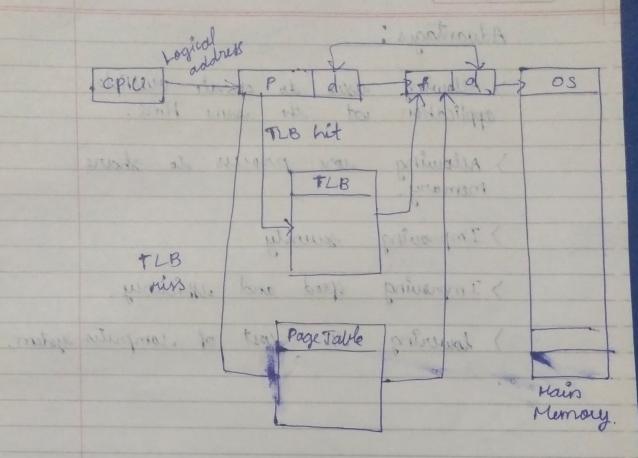
A field that is est whenever a page is accessed.

> It is used to implement LRU.

and for

Translation Lookaside Buffer:

) It is also called as an address-Translation carking



> TBA is a memory cache that stores the vecent translations of V.M to p.M.

> Et û used to reduce the Time faken to access a user memory location.

I since the page Tables are stored in the main memory, every memory access by a program son take sot least finite our long to one memory access by a program son take sot boat twice as dong, one n

to obtain the p: A . and a crecend access to get the data.

Advantages: Allowing users to operate vulliple, application out the same Hime. > Allowing were process to share memory. security > Improving 4.4 speed and ufficiency. > Improving of somputer system. the clost > Lowering Hours ormul-1 AHF nunery vains that where of my desire of V.M Lo recept in reste its reduce the Time the source a voice increasing special Since the pape Tible one whered