Memory Protection

Segmentation

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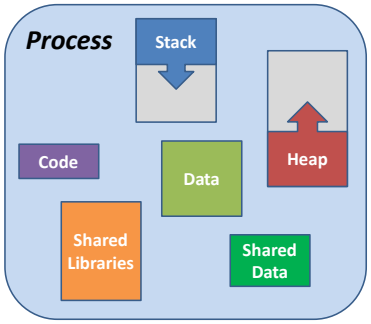
Segments



Logical view of a process

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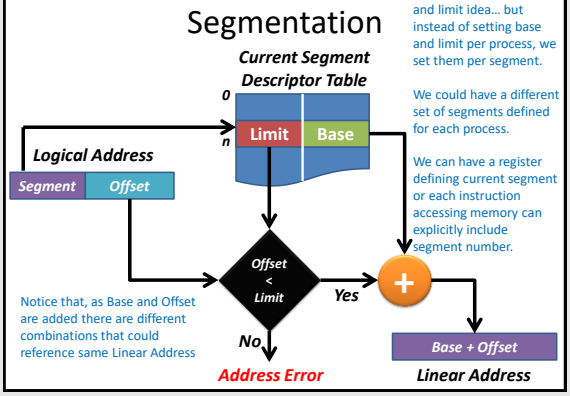
Segmentation



Just an extension of base and limit idea… but instead of setting base and limit per process, we set them per segment.

We could have a different set of segments defined for each process.

We can have a register defining current segment or each instruction accessing memory can explicitly include segment number.

Notice that, as Base and Offset are added there are different combinations that could reference same Linear Address

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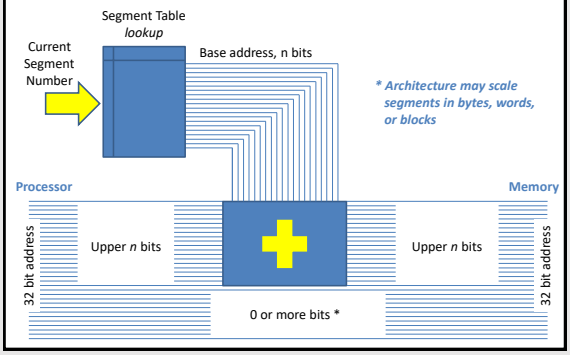
Address Bus: *Processor to Memory*



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Segmentation Examples

- Notice instructions explicitly identify segment
  - JMP segment : address
  - JMP 2 : 0x100 = 0x4400 + 0x100 = 0x4500

Real address

Segment Table

	Base	Limit	Real Address Range	
0	0x1200	0x100	0x1200	0x1300
1	0x2000	0x400	0x2000	0x2400
2	0x4400	0x200	0x4400	0x4600
3	0x3200	0x400	0x3200	0x3600
4	-	-	-	-

Check limit
0x100 < 0x200

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