LECTURE 8 - BASIC ADDITION PROGRAM

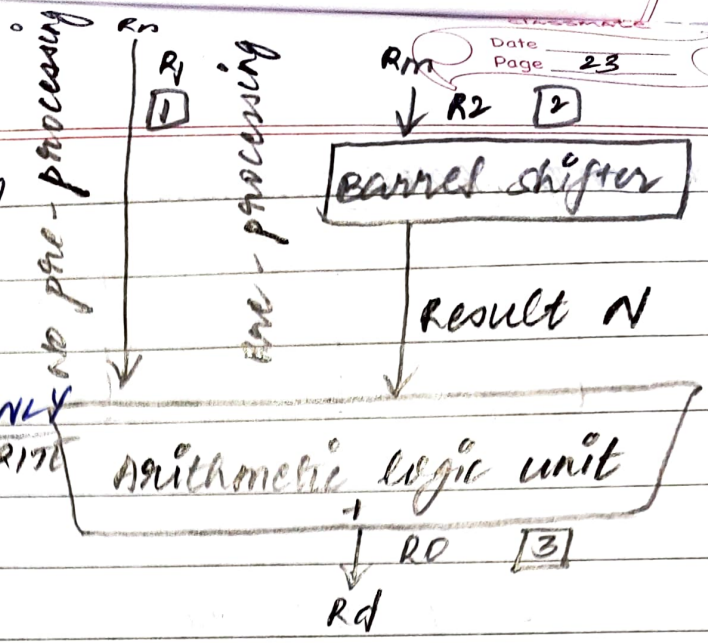
+ **MEMORY MAP - LPC 2148 :**

[refer to page 2 for diagrammatic representation.]

① DATA - On-chip static RAM (memory)

② PROGRAM - On-chip Non-Volatile memory - Flash ROM (Code m

4.0 GB		0xFFFF FFFF
	AHB PERIPHERALS	
3.75 GB		0xF000 0000
	VPB PERIPHERALS	
3.5 GB		0xE000 0000
3.0 GB	RESERVED ADDRESS SPACE	0xC000 0000
2.0 GB		0x8000 0000
	BOOT BLOCK	
	(12 KB REMAPPED FROM ON-CHIP FLASH MEMORY)	0x7FFF D000
		0x7FFF CFFF
	RESERVED ADDRESS SPACE	
		0x7FD0 2000
	8 KB ON-CHIP USB DMA RAM (LPC 2146/2148)	0x7FD0 1FFF
		0x7FD0 0000
	RESERVED ADDRESS SPACE	0x7FCF FFFF
RAM [DATA Memory]		0x4000 2000
	32 KB ON-CHIP STATIC RAM (LPC2146/2148)	0x4000 1FFF
		0x4000 4000
	16 KB ON-CHIP STATIC RAM (LPC2142/2144)	0x4000 3FFF
		0x4000 2000
1.0 GB	8 KB ON-CHIP STATIC RAM (LPC 2141)	0x4000 1FFF
		0x4000 0000
		0x3FFF FFFF
	RESERVED ADDRESS SPACE	
		0x0008 0000
Build, read/write 1,00,000 Program	TOTAL OF 512 KB ON-CHIP NON-VOLATILE MEMORY (LPC 2148)	0x0007 FFFF
		0x0004 0000
	TOTAL OF 256 KB ON-CHIP NON-VOLATILE MEMORY (LPC2146)	0x0003 FFFF
		0x0002 0000
	TOTAL OF 128 KB ON-CHIP NON-VOLATILE MEMORY (LPC 2144)	0x0001 FFFF
		0x0001 0000
PROGRAM FLASH ROM (CODE Min)	TOTAL OF 64 KB ON-CHIP NON-VOLATILE MEMORY (LPC 2142)	0x0000 FFFF
		0x0000 8000
	TOTAL OF 32 KB ON-CHIP NON-VOLATILE MEMORY (LPC 2141)	0x0000 7FFF
0.0 GB		0x0000 0000



* ASSEMBLY LANGUAGE PROGRAM TO ADD TWO NUMBERS:

Assembler Directive

```
AREA ADDITION, CODE, READONLY
                DATA  READWRITE
START → ENTRY
        MOV R1, #1
        MOV R2, #2
        ADD R0, R1, R2
STOP B STOP ← Label
Discard → END
```

32-bit of code (ARM)

	Program m/m
0x00000000	MOV R1, #1
0x00000004	MOV R2, #2
0x00000008	ADD R0, R1, R2
0x0000000C	B 0x0000000C
0x00000010	
.....	

Short Jump →