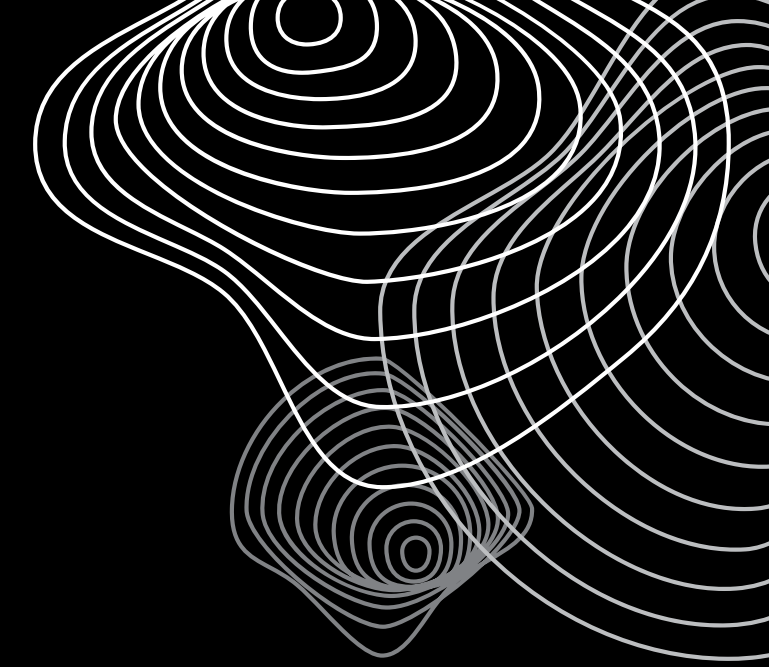




UNDERSTANDING THE MOV INSTRUCTION IN ARM CORTEx-M4

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INTRODUCTION



What is the **MOV** Instruction?

- The **MOV** (Move) instruction is one of the most basic and essential instructions in the ARM Cortex-M4 instruction set.
- It is used for transferring data between registers, loading immediate values into registers, and manipulating the program counter (PC).

INTRODUCTION

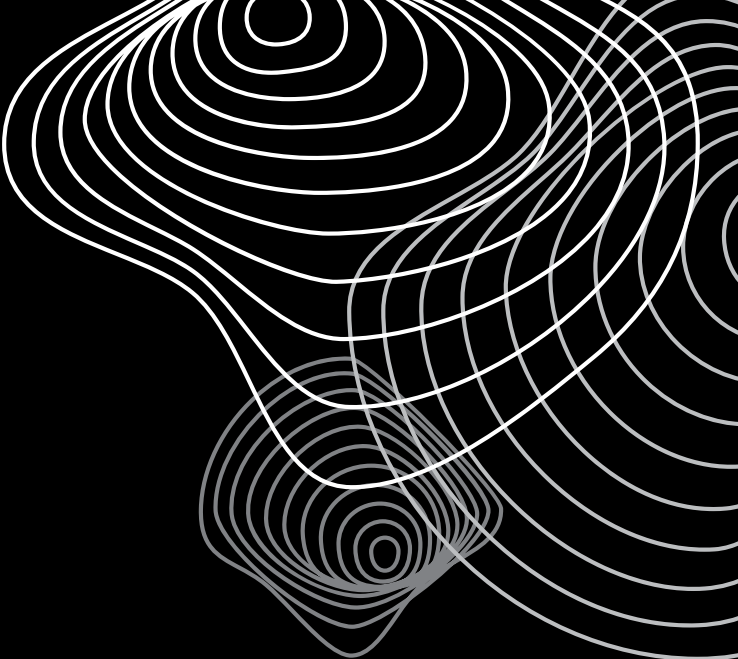


Table 3.1. Cortex-M4 instruction set summary

Operation	Description	Assembler
Move	Register	MOV Rd, <op2>
	16-bit immediate	MOVW Rd, #<imm>
	Immediate into top	MOVT Rd, #<imm>
	To PC	MOV PC, Rm

OVERVIEW OF MOV

- **MOV**

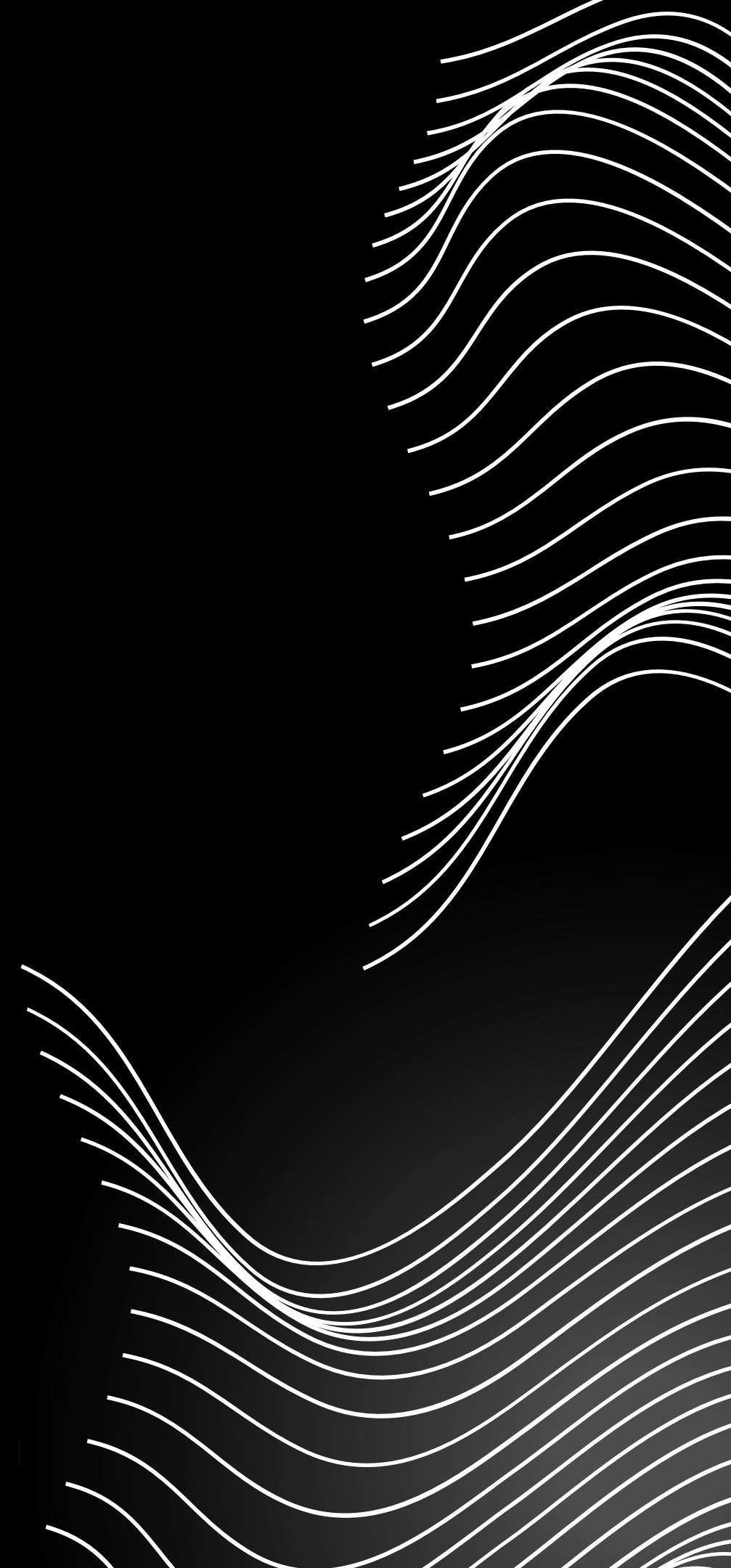
Description:

Transfers the value from a source register or an immediate value to a destination register.

Example:

MOV R0, R1 ; Copies the value from R1 to R0

Use Case: Efficiently moving data between registers.



OVERVIEW OF MOV

- **16-BIT IMMEDIATE (MOVW) OR MOVE-WIDE**

Description:

Loads a lower 16-bit immediate value into a register.

Example:

MOVW R2, #0x1234 ;

Loads the immediate value 0x1234 into R2

Use Case: Quick loading of immediate values.



OVERVIEW OF MOV

- **IMMEDIATE INTO TOP (MOVT) OR MOVE TOP**

Description:

Moves a 16-bit immediate value into the top 16-bits of a 32-bit register.

Example:

```
MOVT R3, #0x1234 ;
```

Use Case: Setting full 32-bit values in two steps.



OVERVIEW OF MOV

- **MOVE TO PROGRAM COUNTER (MOV)**

Description:

Copies the value of a register into the program counter, effectively jumping to a new address.

Example:

```
MOV PC, LR ;
```

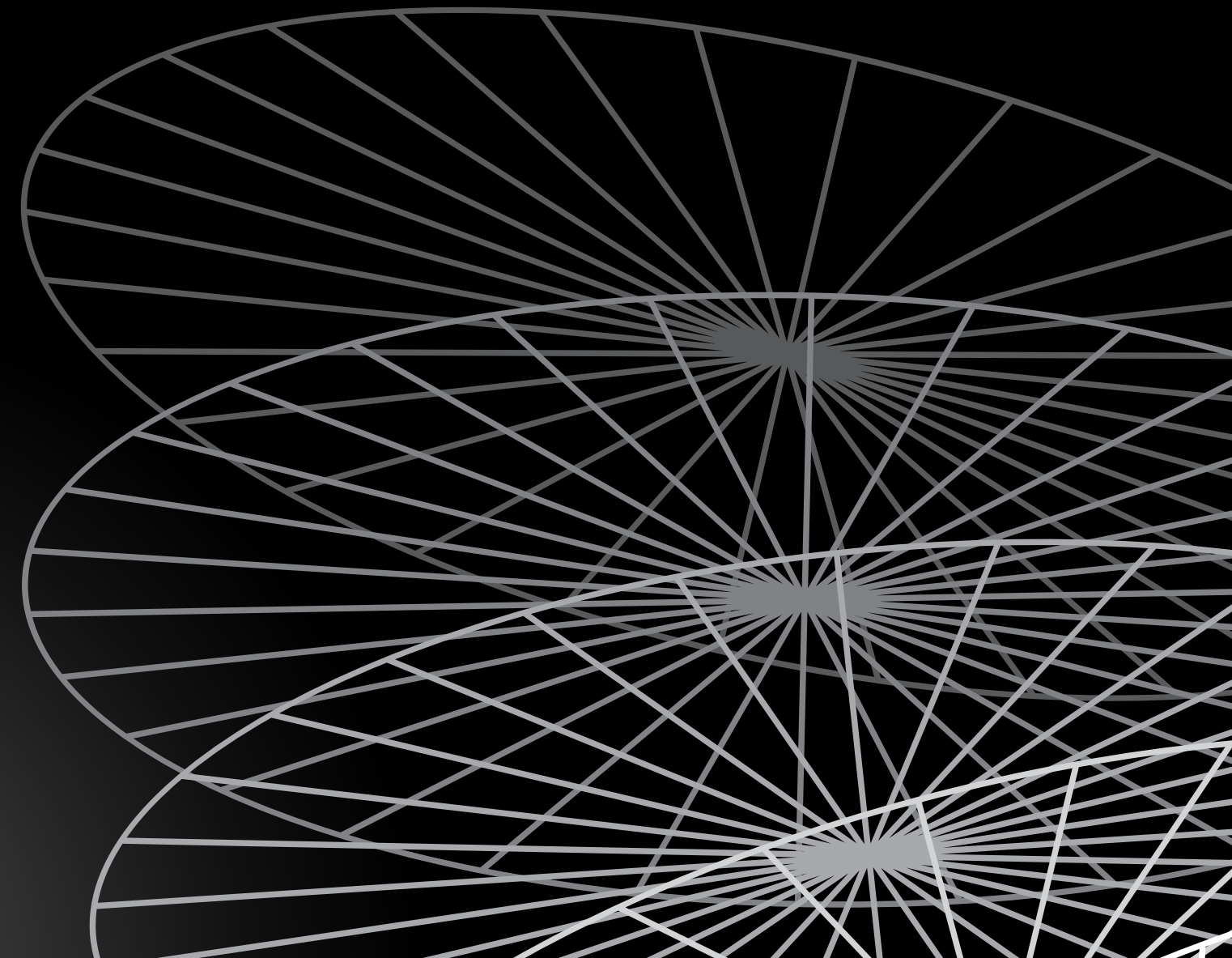
Use Case: Changing program execution flow.



Showcase the usage of MOV, MOVW, MOVT, and MOV
PC instructions through a live coding
demonstration.

Video Link:

CLICK HERE



The background is a dark gradient with intricate white line art. On the left, a series of concentric, wavy lines form a shape reminiscent of a stylized leaf or a wing, extending from the bottom towards the center. On the right, another set of similar wavy lines curves upwards from the top right corner towards the center. The overall effect is a sense of fluid motion and organic form.

THANK YOU