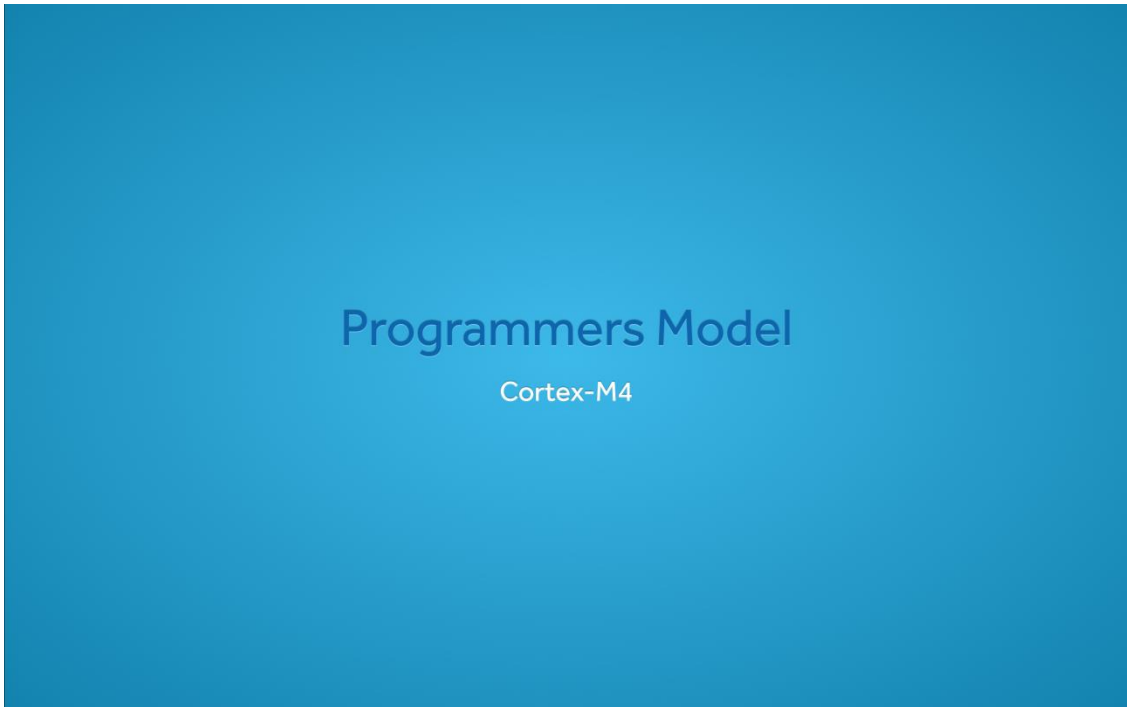

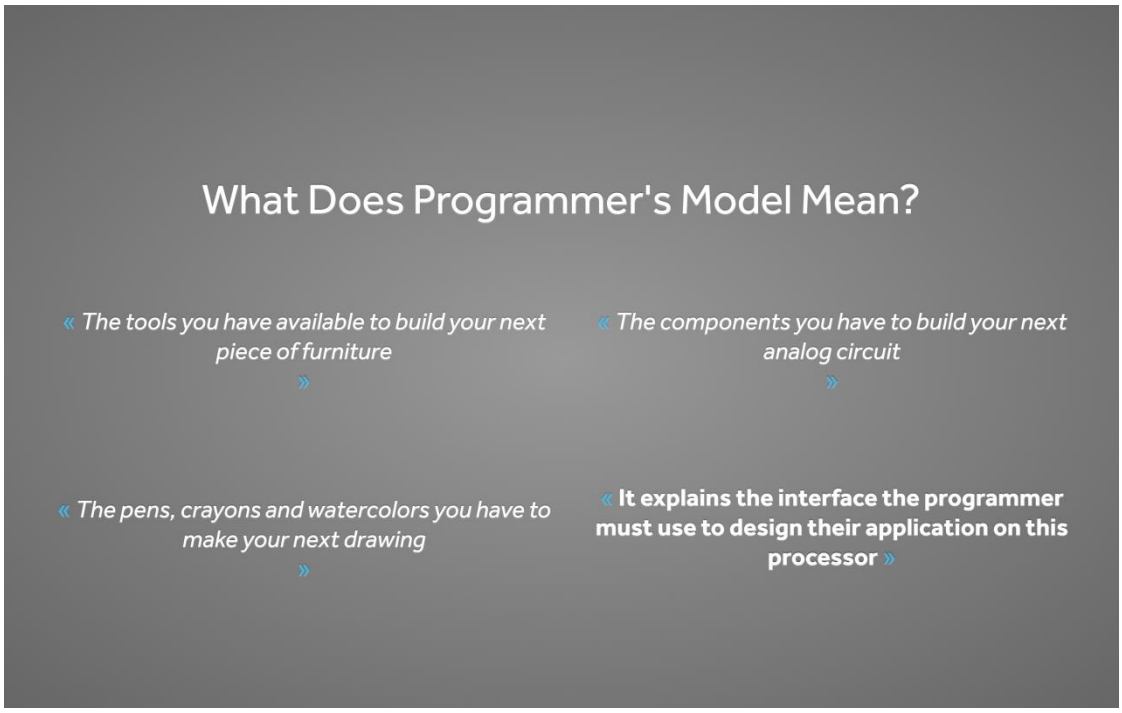

2.1.1 Processor mode and privilege levels for software execution

The processor *modes* are:

Thread mode: Used to execute application software.
The processor enters Thread mode when it comes out of reset.
The CONTROL register controls whether software execution is privileged or unprivileged, see *CONTROL register on page 24*.

Handler mode: Used to handle exceptions.
The processor returns to Thread mode when it has finished exception processing.
Software execution is always privileged.

The *privilege levels* for software execution are:

Unprivileged: *Unprivileged software* executes at the unprivileged level and:

- Has limited access to the MSR and MRS instructions, and cannot use the CPS instruction.
- Cannot access the system timer, NVIC, or system control block.
- Might have restricted access to memory or peripherals.
- Must use the SVC instruction to make a *supervisor call* to transfer control to privileged software.

Privileged: *Privileged software* executes at the privileged level and can use all the instructions and has access to all resources.
Can write to the CONTROL register to change the privilege level for software execution.

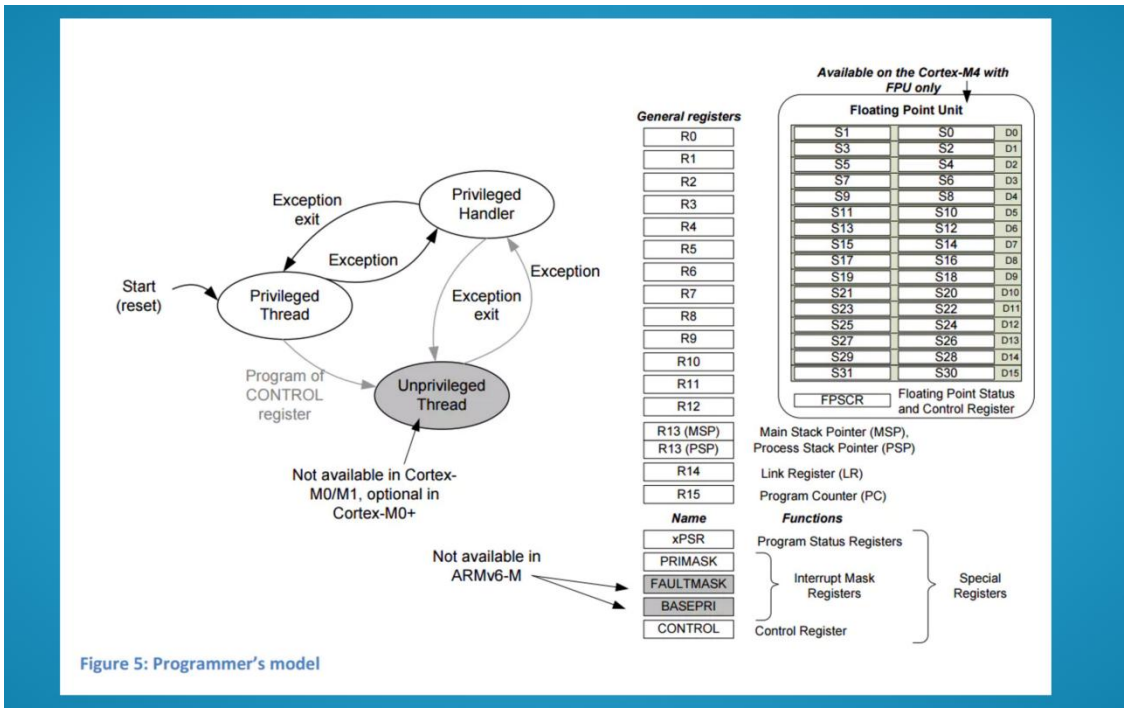

Figure 5: Programmer's model

