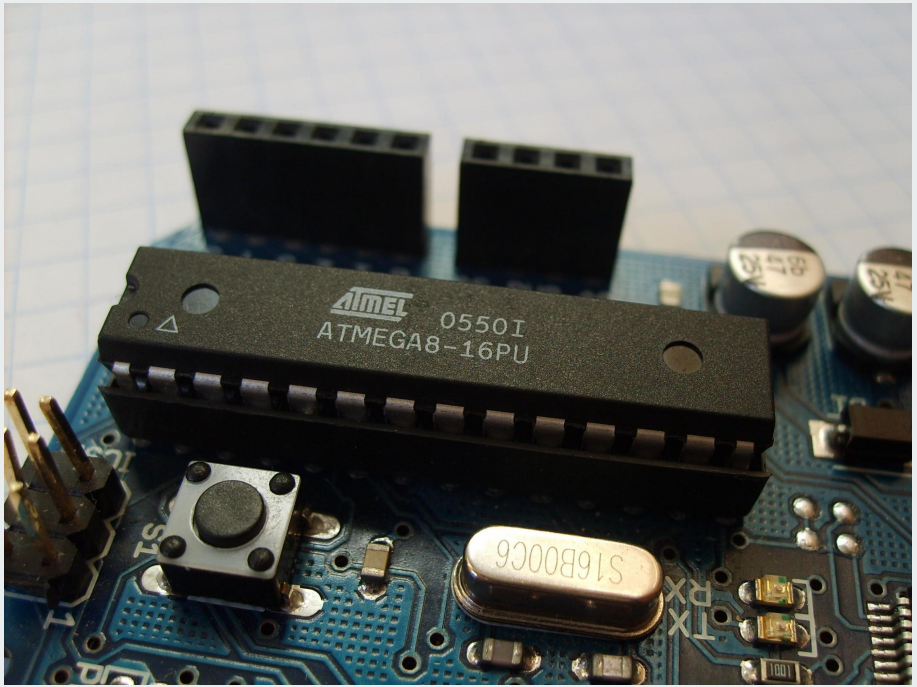
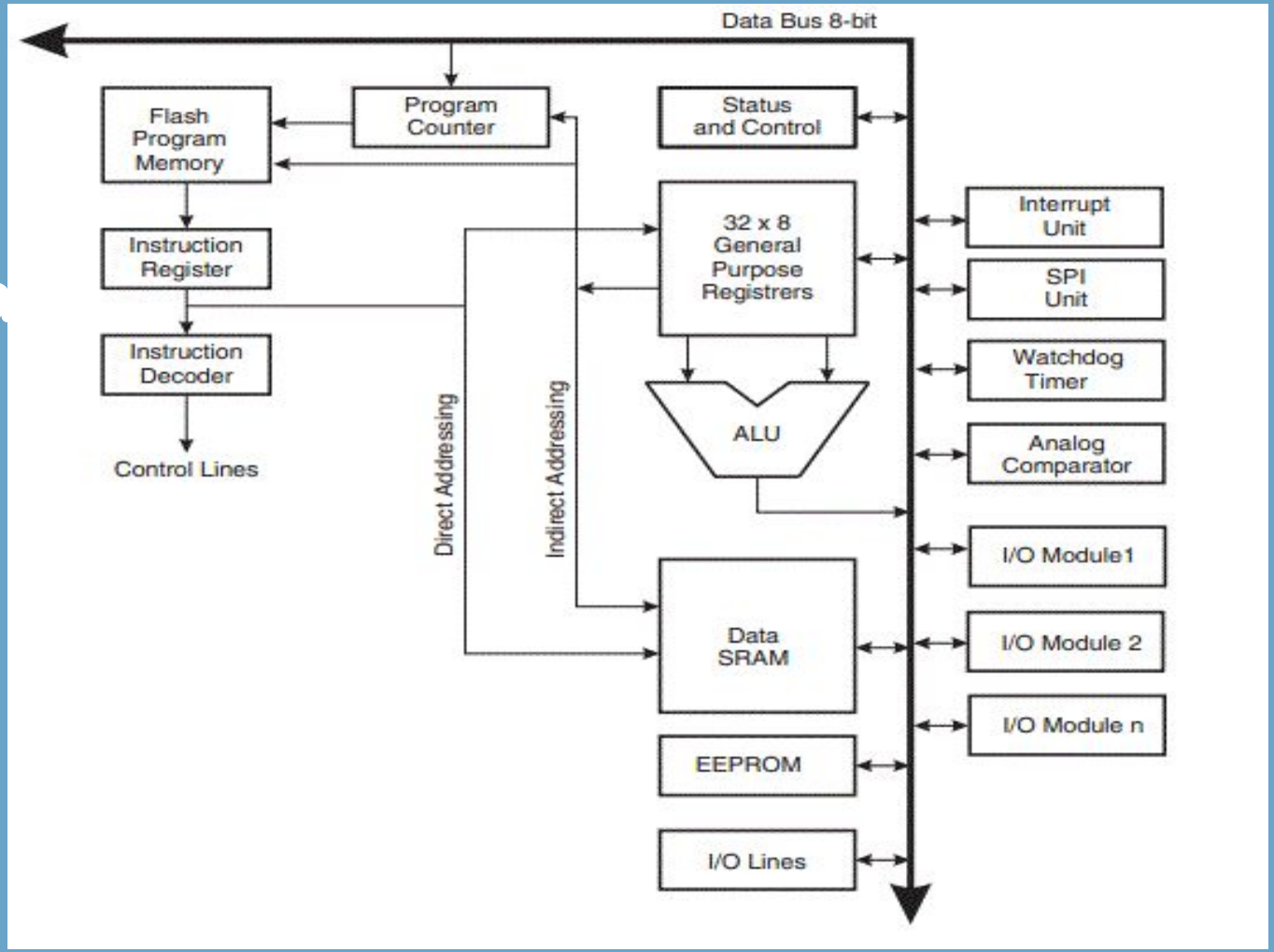
AVR Architecture

A Brief Overview!



Block Dia


Data Bus 8-bit
Flash Program Memory
Program Counter
Status and Control
Instruction Register
Instruction Decoder
Control Lines
32 x 8 General Purpose Registrers
ALU
Direct Addressing
Indirect Addressing
Interrupt Unit
SPI Unit
Watchdog Timer
Analog Comparator
I/O Module1
I/O Module 2
I/O Module n
Data SRAM
EEPROM
I/O Lines

- Status and Control : contains information about the state of the processor and gives instructions accordingly.
- ALU : where all the operations are performed(+,-,/,*,^,& etc).
- SRAM : where all the data for the code is stored(volatile).
- EEPROM : Non volatile; stores device parameters and configuration of the system at runtime.
- I/O Modules : Interact or respond with the environment.

- Flash Program memory : The place where all your codes gets stored.
- Program Counter : Register that points to next code to be executed.
- Instruction Register : Contains the current code which is being executed.
- Decode Register : Decodes the instruction in the IR.
- General Purpose Register : Contains the operands/data to perform operations.

- Interrupt unit : A service which requires immediate attention.
- Serial communications
  -> SPI
  -> UART
  -> I2C
- Analog Comparator : that compares two voltages or currents and outputs signal indicating which is larger.
- 8-bit bus : Can carry 8 bit of data at the particular time.
- Watchdog timer : Timer that is used to detect and recover from computer malfunctions.