

CSE

Microcontroller Application



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Random Access Memory (RAM)

- ▶ is used to hold intermediate results and other temporary data during the execution of the program. Typically, microcontrollers have a few hundreds of bytes of RAM.

Special-Function Registers

- ▶ control various functions of a microcontroller. These are divided into two groups:
 - ▶ **Registers wired into the CPU**
 - Do not necessarily form part of addressable memory.
 - Used to control program flow and arithmetic functions.
 - Examples, status register, program counter, stack pointer, etc.

Registers

- ▶ Register is used to hold the contents of data being manipulated.

- ▶ **Registers required by peripheral components**
 - The contents of these registers include set a timer or enable serial communication.

 - Examples, a program counter, stack pointer, RAM address register, program address register and PC incrementer.

Peripheral Components

- ▶ **The analogue-to-digital converter** - provides an interface between the microcontroller and the sensors that produce analogue electrical equivalents of the actual physical parameters to be controlled.
- ▶ **The digital-to-analogue converter** - provides an interface between the microcontroller and the actuators that provide the control function.
- ▶ **I/O ports** - provide an interface between the microcontroller and the peripheral I/O devices such as the keyboard, display, etc.
- ▶ **Counters/timers** - are used to keep time and/or measure the time interval between events, count the number of events and generate baud rates for the serial ports.

Thank You