



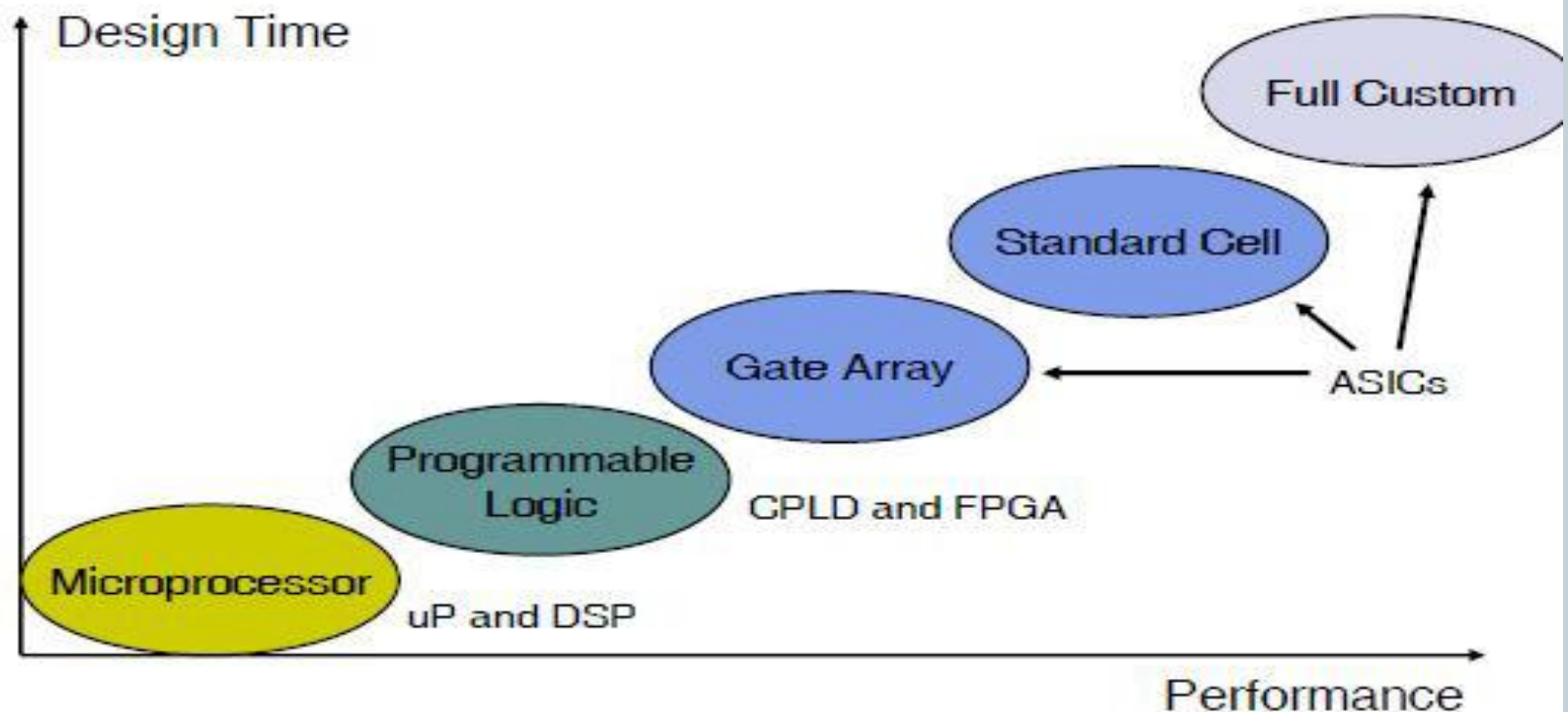
Watchdog Timer



- The watchdog timer is a timing device that resets the system after a predefined timeout. This time is usually configured and the watchdog timer is activated within the first few clock cycles after power-up. It has a number of applications. In many embedded systems reset by a watchdog timer is very essential because it helps in rescuing the system if a fault develops and the program gets stuck.
- On restart, the system can function normally.

IC Technology Devices

Alternatives mean longer design time, but allow higher performance



Device Driver



- A device driver is software for controlling, receiving and sending a byte or a stream of bytes from or to a device.
- In case of physical devices, a driver uses the hardware status flags and control register bits that are in set and reset states. In case of virtual devices also, a driver uses the status and control words and the bits that exist in set and reset states.
- *Driver controls three functions*
 - (i) *Initializing that is activated by placing appropriate bits at the control register or word.*
 - (ii) *Calling an ISR on interrupt or on setting a status flag in the status register and run (drive) the ISR (also called Interrupt Handler Routine).*
 - (iii) *Resetting the status flag after interrupt service.*

Reset Circuits



- An important circuit that associate a system is its reset circuit.
- Reset means that the processor begins the processing of instructions from the starting address.
- A program that is reset and runs on a power-up can be one of the following
 1. A system program that execute from the beginning
 2. A system boot-up program
 3. A system initialization program
- The reset circuit activates for a fixed period and then deactivates.