

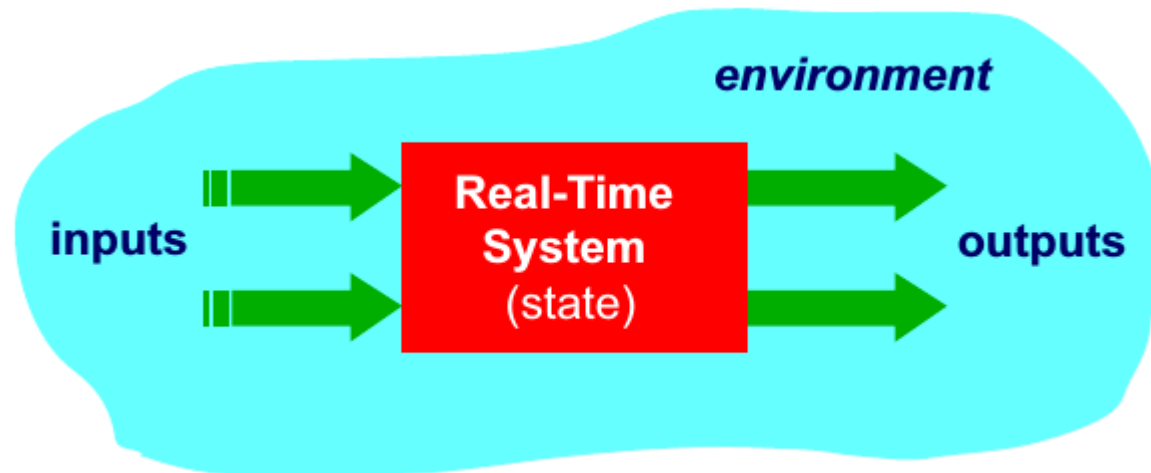


Real time systems

“A DSP has hardware and instruction sets that are optimized for high-speed numeric processing applications and rapid, real-time processing of analog signals from the environment.”

Real-Time Systems

- A real-time system is a system that is required to react to stimuli from the environment within time intervals dictated by the environment.
- Generally, real-time systems are systems that maintain a continuous timely interaction with their environment



Soft and hard real time systems

- A real-time system must satisfy response time constraints or suffer significant system consequences.
- If the consequences consist of a degradation of performance, but not failure, the system is referred to as a *soft real time system*. If the consequences are system failure, the system is referred to as a *hard real time system*.

Hard and soft combined

- The system may have one or more hard real-time tasks, as well as other non-real-time tasks. This is acceptable, as long as the system can properly schedule these tasks in such a way that the hard real-time tasks always meet their deadlines.

Problem

- If a DSP system must sample at 8KHz
¿how many time has the system to perform all the calculus to be a hard real time system?