

EECS150 - Digital Design
Lecture 29 - Asynchronous Sequential
Circuits

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Outline

- Synchronizers

Figures from

“Digital Design”, John F. Wakerly
Prentice Hall, 2000

An excellent treatment of the topic.

- Purely asynchronous circuits

- “self-timed” circuits
- Mano has another class of asynchronous circuits (not covered in class)

Asynchronous Inputs to Synchronous Systems

- Many synchronous systems need to interface to asynchronous input signals:
 - Consider a computer system running at some clock frequency, say 1GHz with:
 - Interrupts from I/O devices, keystrokes, etc.
 - Data transfers from devices with their own clocks
 - Ethernet has its own 100MHz clock
 - PCI bus transfers, 66MHz standard clock.
 - These signals could have no known timing relationship with the system clock of the CPU.