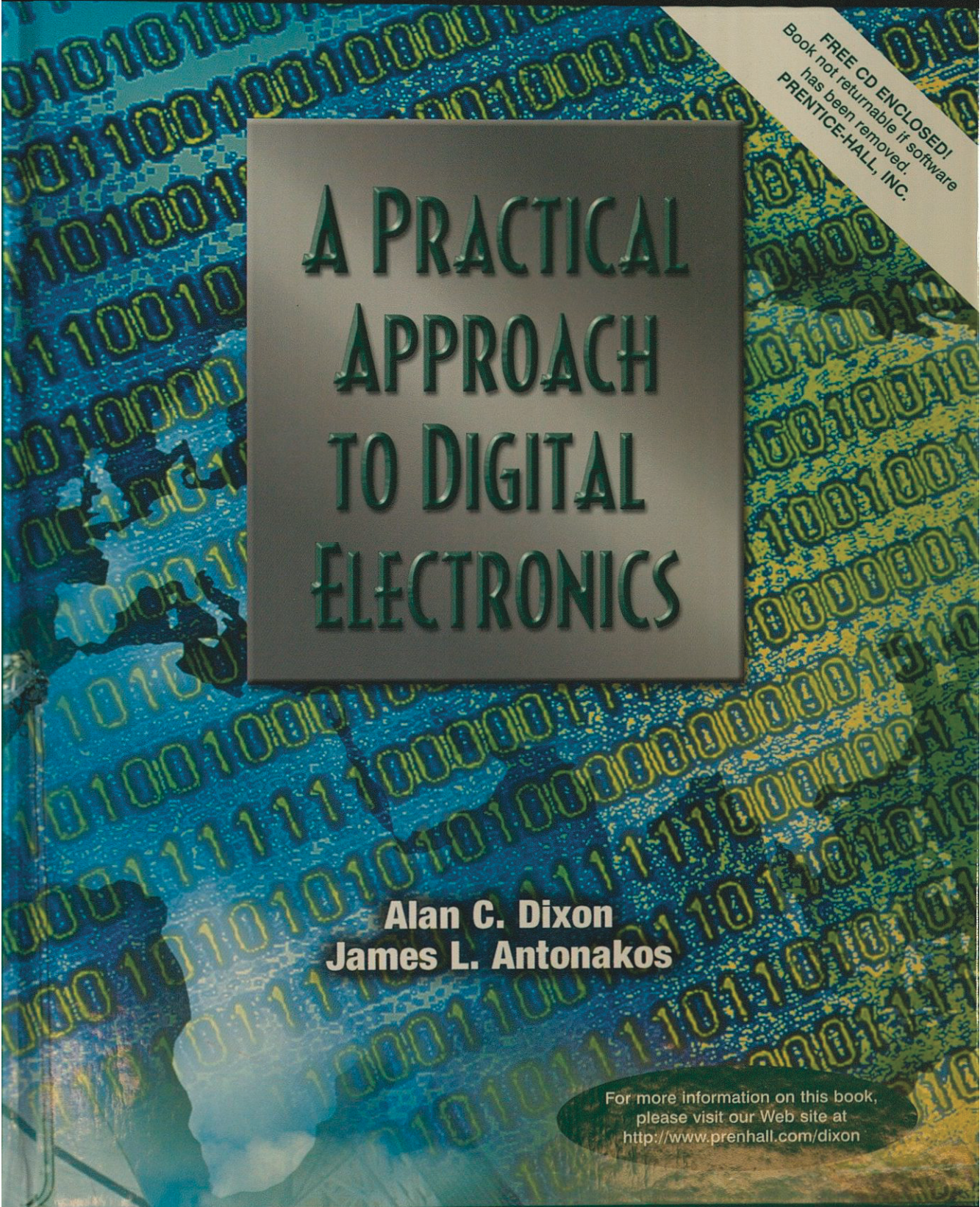




A PRACTICAL APPROACH TO DIGITAL ELECTRONICS

Alan C. Dixon
James L. Antonakos

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Rise time. In pulse analysis, the amount of time a signal takes to rise from 10% of a high level to 90% of a high level.

ROM. Read-only memory; factory programmed.

RS232C. A standard used in serial data communications.

Sample interval. The time between samples (reciprocal of sample rate).

Sample rate. The rate at which data is taken.

Saturated logic. Form of logic in which the transistors are overdriven, causing reduced speed.

Selector. A logic element that chooses one signal from a group of signals. Same as *decoder*.

Serial. Describing the presentation of one bit at a time on a single wire.

SET. A set flip-flop has $Q = 1$.

Shift register. A connection of flip-flops used to store long binary numbers and shift them to the left or right as necessary.

Sign bit. Takes the place of the MSB when using signed numbers.

Signature analysis. An electronic method of checking patterns in digital circuits.

Signed number. Number range that includes both positive and negative numbers.

SIMM. Single inline memory module. Standard memory for the PC.

Simplex. Transmission of data in only one direction.

Space. Indicates a low level in serial transmission.

SSI. Small-scale integration.

Start bit. Bit or signal used in serial transmission to indicate the beginning of new information.

State diagram. A graphical way of representing the behavior of a state machine.

State machine. A circuit containing several different states reachable from each other, with state changes happening synchronously.

State transition table. A data table containing all the information from the state diagram.

Static memory. A device in which each memory cell is a flip-flop.

Status bus. CPU outputs showing the present state of operation in a computer.

Step size. The amount of voltage controlled by the LSB of a digital-to-analog converter.

Stop bit. Bit or signal used to indicate the end of a serial transmission.

Successive approximation register (SAR). Special A/D converter with fixed conversion time.

Sum of the products. Boolean method utilizing all DBB inputs that produce a one output.

Switch. Network device that forwards packets to specific destinations.

Synchronous counter. A counter where all the flip-flops are clocked at the same time. The output is valid after a single propagation delay time.

Synchronous logic. A logic circuit that contains memory, and uses its current state and inputs to determine its next state. State changes occur when a clock pulse is received.

Synchronous transmission. Serial transmission of data requiring a separate clock signal.

Synchronous. Describing input that requires a clock pulse to cause activity. Such input cannot act on its own.

T1 line. 24-channel TDM signal running at 1.544 Mbps. Channels are 8 bits wide.

Tape memory. Slow memory for long-term program storage.

Time division multiplexing (TDM). A digital multiplexing technique where multiple data signals are sampled sequentially and transmitted over a single wire, in serial format.

Timing diagram. A drawing of the simultaneous waveforms that exist as a device (counter, shift register, etc.) proceeds through its various states.

Toggle. When a flip-flop alternates from set to reset, it is said to toggle.

Transceiver. A circuit that can be switched to move data in one of two directions.

Trigger word. A pattern that is used to begin data acquisition.

Tri-state logic. Logic gates that are capable of being electronically disconnected from a wire.

Tri-state. To electronically disconnect the output of a gate from a wire.