



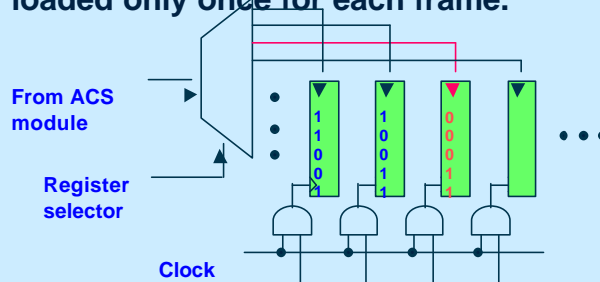
Viterbi Decoding Algorithm

- Implementations of Viterbi algorithm
 - ◆ Maximum likelihood versus maximum a posteriori (MAP)
 - ◆ Hard decision versus soft decision
 - ◆ Soft output Viterbi algorithm (SOVA)
- **Maximum likelihood** Viterbi decoder based on **hard decision**
 - ◆ Simple in implementation
 - ◆ Commonly used approaches:
 - Register-exchange
 - Traceback
 - ◆ Traceback approach is more efficient in power.



Proposed Low-Power Design Methods for Traceback

- **Selective update:** Survival path information is loaded only once for each frame.



- Transient inputs for the traceback are filtered out during the inactive period.



Performance of Various Types of Viterbi Decoders

- Specification of the test Viterbi decoder
 - ◆ frame length : 20 symbols
 - ◆ no. of states: 16
 - ◆ length of initial and of reset sequence : 4

