

# DESIGN OF DIGITAL ASYNCHRONOUS SEQUENTIAL SYSTEMS USING LOGIC GATES

TIMIS Mihai, VALACHI Alexandru, BOTEZATU Nicolae  
"Gh.Asachi" Technical University of Iasi,  
[mtimis@cs.tuiasi.ro](mailto:mtimis@cs.tuiasi.ro), [avalachi@cs.tuiasi.ro](mailto:avalachi@cs.tuiasi.ro)

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Abstract: The use of asynchronous sequential circuits has brought many advantages to system development, given the following examples:

- Signal interface protocols (for example SCSI)
- Asynchronous circuits are ideal for building modular systems. This modular structure enables a global system time checkup. The asynchronous circuits developed for high performance systems, for speeds up to 75 MHz, function correctly for lower speeds also. An asynchronous sequential system can be built from a number of modules, by interfacing them.

The synthesis of a sequential system is proposed as it follows. The system generates a impulse z after the low-high transition of the H signal, figure 1.

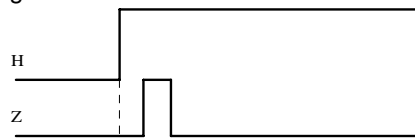


Figure 1

The state diagram based on the time diagram is shown in figure 2.

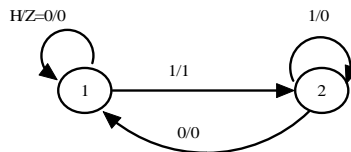


Figure 2

The system implemented only with logic gates is presented in figure 3.

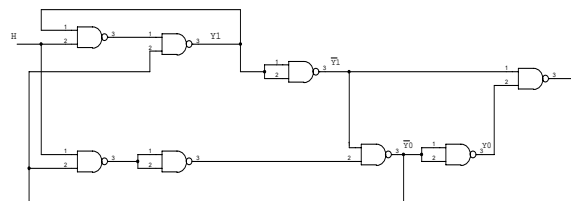


Figure 3

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