



CREDES Workshop, Tallinn University of Technology - 23 September 2010









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	Teaching staff	f:	98		
	Staff with Ph.I	D.:	83		
	Professors:		12		
	Associate Pro	fessors:	17		
	Assistant Prof	fessors	30		
	Invited Assista	ant Professors	20		
	Students:				
	- MIECT:		382		
	- MIEET:		797		
	- ERASMUS students:			(Belgium, Czech Rep	ublic,
England, Hungary, Germany, Italy, Netherlands, Poland, Serbia, Spain, etc.)					
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1. <u>Marking</u> th	e given HGSs	with <u>labels</u> that will b
considered	as the HFSM <u>s</u>	states.
2. Customizin combinatio	g the propose nal circuit.	d HDL templates for th
3. Synthesis	of HFSM circu	its from the customize
VHDL ten	nplates using	commercially availab
computer-a	iided design too	ols, such as ISE of Xilina







































Results (data sorting)									
Number	Number Of clock cycles required for sort								
of data items	Sequential	Parallel (N=2)	Parallel (N=4)						
4019	16075	5622	4047						
3985	15939	5553	4013						
3945	15779	5541	3969						
3969	15875	5531	4001						
3979	15915	5587	4013						
3963	15851	5540	3989						
4010	16039	5622	4037						
3977	15907	5553	4013						
4048	16191	5706	4072						
3988	15951	5555	4014						
Implementation: NEXYS-2 prototyping board with FPGA of Spartan-3e family									
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Conclusion

- 1. The proposed technique <u>makes easier</u> to convert software functions to hardware implementations because the mechanisms in software and in hardware become relatively similar. In particular, *recursion* is supported.
- 2. Modular specifications <u>simplify</u> such useful feature as *design reuse* and support the strategy *divide and conquer*.
- 3. Modular algorithms make easier verification and debugging.
- 4. All the proposed specifications are <u>synthesizable</u> and our experience has shown that for the considered cases the resulting circuits are <u>faster</u> than the equivalent processorbased implementations. This is because using the proposed *optimization technique* permits hierarchical calls/returns to be accelerated compared with similar calls/returns in software.

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