Barkalov / Titarenko

Logic Synthesis for Compositional Microprogram Control Units



One of the very important parts of any digital system is the control unit, coordin- ing interplay of other system blocks. As a rule, control units have irregular str- ture, which makes process of their logic circuits design very sophisticated. In case of complex logic controllers, the problem of system design is reduced practically to the design of control units. Actually, we observe a real technical boom connected with achievements in semiconductor technology. One of these is the development of integrated circuit known as the "systems-on-a-programmable- chip" (SoPC), where the number of elements approaches one billion. Because of the extreme complexity of microchips, it is very important to develop effective design methods oriented on particular properties of logical elements. Solution of this problem permits impr- ing functional capabilities of the target digital system inside single SoPC chip. As majority of researches point out, design methods used in case of industrial packages are, in case of complex digital system design, far from optimal. Similar problems concern the design of control units with standard ?eld-programmable logic devices (FPLD), such as PLA, PAL, GAL, CPLD, and FPGA. Let us point out that modern SoPC are based on CPLD or FPGA technology. Thus, the development of eff- tive design methods oriented on FPLD implementation of logic circuits used in the control units still remains the problem of great importance.

One of the very important parts of any digital system is the control unit, coordin- ing interplay of other system blocks. As a rule, control units have irregular str- ture, which makes process of their logic circuits design very sophisticated. In case of complex logic controllers, the problem of system design is reduced practically to the design of control units. Actually, we observe a real technical boom connected with achievements in semiconductor technology. One of these is the development of integrated circuit known as the "systems-on-a-programmable- chip" (SoPC), where the number of elements approaches one billion. Because of the extreme complexity of microchips, it is very important to develop effective design methods oriented on particular properties of logical elements. Solution of this problem permits impr- ing functional capabilities of the target digital system inside single SoPC chip. As majority of researches point out, design methods used in case of industrial packages are, in case of complex digital system design, far from optimal. Similar problems concern the design of control units with standard ?eld-programmable logic devices (FPLD), such as PLA, PAL, GAL, CPLD, and FPGA. Let us point out that modern SoPC are based on CPLD or FPGA technology. Thus, the development of eff- tive design methods oriented on FPLD implementation of logic circuits used in the control units still remains the problem of great importance.

160,49 €
149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540692836
Medium: Buch
ISBN: 978-3-540-69283-6
Verlag: Springer
Erscheinungstermin: 14.08.2008
Sprache(n): Englisch
Auflage: 1. Auflage 2008
Serie: Lecture Notes in Electrical Engineering
Produktform: Gebunden
Gewicht: 595 g
Seiten: 272
Format (B x H): 155 x 235 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)