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Compilers; 5.9 Conclusion; 6 Graphical Simulation and Performance Analysis of PPFs; 6.1 Simulating Asynchronous Pipelines 6.2 Simulation Implementation 6.3 Graphical Representation; 6.4 Display Features; 6.5 Cross-architectural Comparison; 6.6 Conclusion; 7 Template-based Implementation; 7.1 Template Design Principles; 7.2 Implementation Choices; 7.3 Parallel Logic Implementation; 7.4 Target Machine Implementation; 7.5 'NOW' Implementation for Logic Debugging; 7.6 Target Machine Implementations for Performance Tuning; 7.7 Patterns and Templates; 7.8 Conclusion; Part III: Case Studies; 8 Application Examples; 8.1 Case Study 1: H.261 Encoder; 8.2 Case Study 2: H263 Encoder/Decoder 8.3 Case Study 3: 'Eigenfaces' - Face Detection 8.4 Case Study 4: Optical Flow; 8.5 Conclusion; 9 Design Studies; 9.1 Case Study 1: Karhunen-Loeve Transform (KLT); 9.2 Case Study 2: 2D- Wavelet Transform; 9.3 Case Study 3: Vector Quantization; 9.4 Conclusion; 10 Counter Examples; 10.1 Case Study 1: Large Vocabulary Continuous-Speech Recognition; 10.2 Case Study 2: Model-based Coding; 10.3 Case Study 3: Microphone Beam Array; 10.4 Conclusion; Part IV: Underlying Theory and Analysis; 11 Performance of PPFs; 11.1 Naming Conventions; 11.2 Performance Metrics; 11.3 Gathering Performance Data 11.4 Performance Prediction Equations 11.5 Results; 11.6 Simulation Results; 11.7 Asynchronous Pipeline Estimate; 11.8 Ordering Constraints; 11.9 Task Scheduling; 11.10 Scheduling Results; 11.11 Conclusion; Appendix; 12 Instrumentation of Templates; 12.1 Global Time; 12.2 Processor Model; 12.3 Local Clock Requirements; 12.4 Steady-state Behavior; 12.5 Establishing a Refresh Interval; 12.6 Local Clock Adjustment; 12.7 Implementation on the Paramid; 12.8 Conclusion; Part V: Future Trends; 13 Future Trends; 13.1 Designing for Differing Embedded Hardware 13.2 Adapting to Mobile Networked Computation

Sommario/riassunto

This book outlines a methodology for the use of parallel processing in real time systems. It provides an introduction to parallel processing in general, and to embedded systems in particular. Among the embedded systems are processors in such applications as automobiles, various machinery, IPGAs (field programmable gate arrays), multimedia embedded systems such as those used in the computer game industry, and more.* Presents design and simulation tools as well as case studies.* First presentation of this material in book form.
