

2007 IEEE/ACM/IFIP Workshop on Embedded Systems for Real-Time Multimedia

**Salzburg, Austria
4-5 October 2007**



**IEEE Catalog Number:
ISBN 10:
ISBN 13:**

**CFP07STI-PRT
1-4244-1654-X
978-1-4244-1654-7**

TABLE OF CONTENTS

Copyright information	ii
Welcome message from the organizing committee	iii
Technical Program Committee	iv
Invited Papers	1
Author Index	131

Session 1: Energy-Efficient Memory Hierarchies for Multimedia Architectures

Interposing Flash Between Disk and DRAM to Save Energy for Streaming Workloads	7
<i>M.G. Khatib, B.J. van der Zwaag, P.H. Hartel, G.J.M. Smit</i>	
Code Placement for Reducing the Energy Consumption of Embedded Processors with Scratchpad and Cache Memories	13
<i>Yuriko Ishitobi, Tohru Ishihara, Hiroto Yasuura</i>	

Session 2: Performance and Power Analysis

Network Calculus Applied to Verification of Memory Access Performance in SoCs	21
<i>Tomas Henriksson, Pieter van der Wolf, Axel Jantsch, Alistair Bruce</i>	
Performance Analysis of Parallel Execution of H.264 Encoder on the Cell Processor	27
<i>Jonghan Park, Soonhoi Ha</i>	
Signature-Based Microprocessor Power Modeling for Rapid System-Level Design Space Exploration	33
<i>Peter van Stralen, Andy D. Pimentel</i>	

Session 3: Run-Time Management for Real-Time Multimedia

A Quick Safari Through the MPSoC Run-Time Management Jungle	41
<i>Vincent Nollet, Diederik Verkest, Henk Corporaal</i>	
Run-Time Task Overlapping on Multiprocessor Platforms	47
<i>Zhe Ma, Daniele P. Scarpazza, Francky Catthoor</i>	
Adaptive Mapping to Resource Availability for Dynamic Wavelet-Based Applications	53
<i>Vissarion Ferentinos, Bert Geelen, Francky Catthoor, Gauthier Lafruit, Thanos Stouraitis, Rudy Lauwereins, Diederik Verkest</i>	
Impact of Task Migration on Streaming Multimedia for Embedded Multiprocessors: A Quantitative Evaluation	59
<i>Michele Pittau, Andrea Alimonda, Salvatore Carta, Andrea Acquaviva</i>	

Session 4: Design Case Studies

Still Image Processing on Coarse-Grained Reconfigurable Array Architectures	67
<i>Matthias Hartmann, Vassilis Pantazis, Tom Vander Aa, Mladen Berekovic, Christian Hochberger, Bjorn de Sutter</i>	
Design and Implementation of a Multithreaded High Resolution MPEG4 Decoder on Sandblaster DSP	73
<i>Vaidyanathan Ramadurai, Sanjay Jinturkar, Mayan Moudgill, John Glossner</i>	
Embedded Low Complexity JPEG2000 Videocoding System	77
<i>Arthur Schuchter, Andreas Uhl</i>	

Session 5: Compiler Techniques for High Performance Multimedia Processing

Leveraging Predicated Execution for Multimedia Processing	85
<i>Dietmar Ebner, Florian Brandner, Andreas Krall</i>	
Data-Parallel Code Generation from Synchronous Dataflow Specification of Multimedia Applications	91
<i>Seongnam Kwon, Choonseung Lee, Soonhoi Ha</i>	

Session 6: Embedded Software Techniques

Component Based Library Implementation of Abstract Data Types for Resource Management Customization of Embedded Systems	99
<i>C. Baloukas, L. Papadopoulos, S. Mamagkakis, D. Soudris</i>	
MP-Queue: An Efficient Communication Library for Embedded Streaming Multimedia Platforms	105
<i>Alessandro Dalla Torre, Martino Ruggiero, Luca Benini</i>	

Session 7: Advanced Techniques for the Design and Verification of Video and Image Processing Applications

Actor-Oriented Modeling and Simulation of Sliding Window Image Processing Algorithms	113
<i>Joachim Keinert, Joachim Falk, Christian Haubelt, Jürgen Teich</i>	
An Optimized Application Architecture of the H.264 Video Encoder for Application Specific Platforms	119
<i>Muhammad Shafique, Lars Bauer, Jörg Henkel</i>	
A Modular Suite for High-Definition Image Processor Co-Verification	125
<i>Marc Bertola, Ron Irvine</i>	