

Table of Contents

Keynote Speeches and Invited Talks Abstracts (Partial)

Keynote Speech: Abstraction and the C++ Machine Model.....	1
<i>Bjarne Stroustrup</i>	
Keynote Speech: Industrializing Software Development.....	14
<i>Alexander Stepanov</i>	
Keynote Speech: Testing Methodologies for Embedded Systems and Systems-on-Chip.....	15
<i>Laurence T. Yang and Jon Muzio</i>	
Keynote Speech: China Putian Promote Commercial TD-SCDMA Services.....	25
<i>Qingfang Chen</i>	
Invited Talk: Agent-Oriented Approach to Ubiquitous Computing.....	30
<i>Makoto Amamiya</i>	
Invited Talk: Resource-Aware Programming.....	38
<i>Walid Taha</i>	
Invited Talk: In-House Tools for Low-Power Embedded Systems.....	44
<i>Naehyuck Chang</i>	
Invited Talk: CODACS Project: A Development Tool for Embedded System Prototyping.....	59
<i>Lorenzo Verdoscia</i>	

Track 1 Distributed Embedded Computing

A Study on Web Services Selection Method Based on the Negotiation Through Quality Broker: A MAUT-based Approach.....	65
<i>Young-Jun Seo, Hwa-Young Jeong, and Young-Jae Song</i>	

CA-Ex: A Tuning-Incremental Methodology for Communication Architectures in Embedded Systems.....	74
<i>Haili Wang, Jinian Bian, Yawen Niu, Kun Tong, and Yunfeng Wang</i>	
Efficient Parallel Spatial Join Processing Method in a Shared-Nothing Database Cluster System.....	81
<i>Warnill Chung, Soon-Young Park, and Hae-Young Bae</i>	
Maximizing Parallelism for Non-uniform Dependence Loops Using Two Parallel Region Partitioning Method.....	88
<i>Sam Jin Jeong</i>	
The KODAMA Methodology: An Agent-Based Distributed Approach.....	94
<i>Guoqiang Zhong, Satoshi Amamiya, Kenichi Takahashi, and Makoto Amamiya</i>	
Track 2 Embedded Systems	
A New Iris Recognition Approach for Embedded System.....	103
<i>Hongying Gu, Yueting Zhuang, Yunhe Pan, and Bo Chen</i>	
A RAID Controller: Software, Hardware and Embedded Platform Based on Intel IOP321.....	110
<i>Xiao-Ming Dong, Ji-Guang Wan, Rui-Fang Liu, and Zhi-Hu Tan</i>	
Component-Based Integration Towards a Frequency-Regulating Home Appliance Control System.....	118
<i>Wei Qin Tong, Qinghui Luo, Zhijie Yin, Xiaoli Zhi, and Yuwei Zong</i>	
Design and Implementation of the System for Remote Voltage Harmonic Monitor.....	124
<i>Kejin Bao, Huanchuen Zhang, and Hao Shentu</i>	
Guaranteed Cost Control of Networked Control Systems: An LMI Approach.....	130
<i>Shanbin Li, Zhi Wang, and Youxian Sun</i>	
Robust Tuning of Embedded Intelligent PID Controller for Induction Motor Using Bacterial Foraging Based Optimization.....	137
<i>Dong Hwa Kim</i>	

The Customizable Embedded System for Seriate Intelligent Sewing Equipment.....	143
<i>Kailong Zhang, Xingshe Zhou, Ke Liang, and Jianjun Li</i>	

Track 3 Embedded Hardware and Architecture

A Distributed Architecture Model for Heterogeneous Multiprocessor System-on-Chip Design.....	150
<i>Qiang Wu, Jinian Bian, and Hongxi Xue</i>	

A New Technique for Program Code Compression in Embedded Microprocessor.....	158
<i>Ming-che Lai, Kui Dai, Li Shen, and Zhi-ying Wang</i>	

Design of System Area Network Interface Card Based on Intel IOP310.....	165
<i>Xiaojun Yang, Lili Guo, Peiheng Zhang, and Ninghui Sun</i>	

Dual-Stack Return Address Predictor.....	172
<i>Caixia Sun and Minxuan Zhang</i>	

Electronic Reading Pen: A DSP Based Portable Device for Offline OCR and Bi-linguistic Translation.....	180
<i>Qing Wang, Sicong Yue, Rongchun Zhao, and David Feng</i>	

Formal Co-verification for SoC Design with Colored Petri Net.....	188
<i>Jinyu Zhan, Nan Sang, and Guangze Xiong</i>	

Hardware for Modular Exponentiation Suitable for Smart Cards.....	196
<i>Luiza de Macedo Mourelle and Nadia Nedjah</i>	

PN-based Formal Modeling and Verification for ASIP Architecture.....	203
<i>Yun Zhu, Xi Li, Yu-chang Cong, and Zhi-gang Wang</i>	

The Design and Performance Analysis of Embedded Parallel Multiprocessing System.....	210
<i>Guanghui Liu, Fei Xia, Xuejun Yang, Haifang Zhou, Heng Zhao, and Yu Deng</i>	

Use Dynamic Combination of Two Meta-heuristics to Do Bi-partitioning.....	216
<i>Zhihui Xiong, Sikun Li, Jihua Chen, and Maojun Zhang</i>	

Track 4 Middleware for Embedded Computing

A New Approach for Predictable Hard Real-Time Transaction Processing in Embedded Database.....	222
<i>Tianzhou Chen, Yi Lian, and Jiangwei Huang</i>	

A QoS-aware Component-Based Middleware for Pervasive Computing.....	229
<i>Yuan Liao and Mingshu Li</i>	

AnyCom: A Component Framework Optimization for Pervasive Computing.....	236
<i>Wenzhi Chen, Zhou Jiang, and Zhaohui Wu</i>	

Association Based Prefetching Algorithm in Mobile Environments.....	243
<i>Ho-Sook Kim and Hwan-Seung Yong</i>	

Integration Policy in Real-Time Embedded System.....	251
<i>Hyun Chang Lee</i>	

Prism-MW Based Connector Interaction for Middleware Systems.....	258
<i>Hwa-Young Jeong and Young-Jae Song</i>	

ScudWare: A Context-Aware and Lightweight Middleware for Smart Vehicle Space.....	266
<i>Zhaohui Wu, Qing Wu, Jie Sun, Zhigang Gao, Bin Wu, and Mingde Zhao</i>	

Track 5 Mobile Systems

Application of Cooperating and Embedded Technology for Network Computer Media Player.....	274
<i>Yue Gao, Bin Zhang, Xichang Zhong, and Liuying Qu</i>	

QoS Adaptive Algorithms Based on Resources Availability of Mobile Terminals.....	280
<i>Yun Li and Lei Luo</i>	

Semi-Videoconference System Using Real-Time Wireless Technologies.....	287
<i>Cheng Jin, Jiajun Bu, Chun Chen, Mingli Song, and Mingyu You</i>	

Smart Client Techniques for Online Game on Portable Device.....	294
<i>Huacheng Ke, Haixiang Zhang, and Chun Chen</i>	

The Implementation of Mobile IP in Hopen System.....	300
<i>Yintang Gu and Xichang Zhong</i>	

Track 6 Transducer Network

A New CGI Queueing Model Designed in Embedded Web Server.....	306
<i>Xi-huang Zhang and Wen-bo Xu</i>	

A New Embedded Wireless Microsensor Network Based on Bluetooth Scatternet and PMCN.....	312
<i>Kangqu Zhou and Wenge Yu</i>	

A New Gradient-Based Routing Protocol in Wireless Sensor Networks.....	318
<i>Li Xia, Xi Chen, and Xiaohong Guan</i>	

A Sensor Media Access Control Protocol Based on TDMA.....	326
<i>Xiaohua Luo, Kougen Zheng, Yunhe Pan, and Zhaohui Wu</i>	

Clusters Partition and Sensors Configuration for Target Tracking in Wireless Sensor Networks.....	333
<i>Yongcai Wang, Dianfei Han, Qianchuan Zhao, Xiaohong Guan, and Dazhong Zheng</i>	

Enhanced WFQ Algorithm with (m,k)-Firm Guarantee.....	339
<i>Hongxia Yin, Zhi Wang, and Youxian Sun</i>	

Fuzzy and Real-Time Queue Management in Differentiated Services Networks.....	347
<i>Mahdi Jalili-Kharaajoo, Mohammad Reza Sadri, and Farzad Habibipour Roudsari</i>	

Issues of Wireless Sensor Network Management.....	355
<i>Zhigang Li, Xingshe Zhou, Shining Li, Gang Liu, and Kejun Du</i>	
OPC-based Architecture of Embedded Web Server.....	362
<i>Zhiping Jia and Xin Li</i>	
Synchronized Data Gathering in Real-Time Embedded Fiber Sensor Network.....	368
<i>Yanfei Qiu, Fangmin Li, and Ligong Xue</i>	
The Energy Cost Model of Clustering Wireless Sensor Network Architecture....	374
<i>Yanjun Zhang, Xiaoyun Teng, Hongyi Yu, and Hanying Hu</i>	
Traffic Control Scheme of VCNs' Gigabit Ethernet Using BP.....	381
<i>Dae-Young Lee and Sang-Hyun Bae</i>	
Track 7 Embedded Operating System	
A Jitter-Free Kernel for Hard Real-Time Systems.....	388
<i>Christo Angelov and Jesper Berthing</i>	
A New Approach to Deadlock Avoidance in Embedded System.....	395
<i>Gang Wu, Zhiqiang Tang, and Shiliang Tu</i>	
A Novel Task Scheduling for Heterogeneous Systems.....	400
<i>XuePing Ren, Jian Wan, and GuangHuan Hu</i>	
Applying Component-Based Meta-service in Liquid Operating System for Pervasive Computing.....	406
<i>Bo Ma, Yi Zhang, and Xingguo Shi</i>	
Embedded Operating System Design: The Resolved and Intelligent Daemon Approach.....	412
<i>Hai-yan Li and Xin-ming Li</i>	

New Approach for Device Driver Development – Devil+ Language.....	418
<i>Yingxi Yu, Mingyuan Zhu, and Shuoying Chen</i>	

On Generalizing Interrupt Handling into a Flexible Binding Model for Kernel Components.....	423
<i>Qiming Teng, Xiangqun Chen, and Xia Zhao</i>	

Research Directions for Embedded Operating Systems.....	430
<i>Xiangqun Chen, Xia Zhao, and Qiming Teng</i>	

SmartOSEK: A Real-Time Operating System for Automotive Electronics.....	437
<i>Minde Zhao, Zhaohui Wu, Guoqing Yang, Lei Wang, and Wei Chen</i>	

Track 8 Power-Aware Computing

A Functionality Based Instruction Level Software Power Estimation Model for Embedded RISC Processors.....	443
<i>Jia Chen, Sheng-yuan Wang, Yuan Dong, Gui-lan Dai, and Yang Yang</i>	

Robust and Adaptive Dynamic Power Management for Time Varying System...	449
<i>Min Li, Xiaobo Wu, Menglian Zhao, Ping Li, and Xiaolang Yan</i>	

Skyeye: An Instruction Simulator with Energy Awareness.....	456
<i>Shuo Kang, Huayong Wang, Yu Chen, Xiaoge Wang, and Yiqi Dai</i>	

The Modeling for Dynamic Power Management of Embedded Systems.....	462
<i>Jiangwei Huang, Tianzhou Chen, Minjiao Ye, and Yi Lian</i>	

Why Simple Timeout Strategies Work Perfectly in Practice?.....	468
<i>Qi Wu and Guang-ze Xiong</i>	

Track 9 Real-Time System

An Adaptive Fault Tolerance Scheme for Applications on Real-Time Embedded System.....	474
<i>Hongzhou Chen, Guochang Gu, and Yizun Guo</i>	

Concurrent Garbage Collection Implementation in a Standard JVM for Real-Time Purposes.....	481
<i>Yuqiang Xian, Ning Zhang, and Guangze Xiong</i>	
Relating FFTW and Split-Radix.....	488
<i>Oleg Kiselyov and Walid Taha</i>	
Selecting a Scheduling Policy for Embedded Real-Time Monitor and Control Systems.....	494
<i>Qingxu Deng, Mingsong Lv, and Ge Yu</i>	
Sharing I/O in Strongly Partitioned Real-Time Systems.....	502
<i>Ravi Shah, Yann-Hang Lee, and Daeyoung Kim</i>	
The Efficient QoS Control in Distributed Real-Time Embedded Systems.....	508
<i>You-wei Yuan, La-mei Yan, and Qing-ping Guo</i>	

Track 10 Embedded System Verification and Testing

An Efficient Verification Method for Microprocessors Based on the Virtual Machine.....	514
<i>Jianfeng An, Xiaoya Fan, Shengbing Zhang, and Danghui Wang</i>	
EFSM-based Testing Strategy for APIs Test of Embedded OS.....	522
<i>SongXia Hao, XiChang Zhong, and Yun Wang</i>	
EmGen: An Automatic Test-Program Generation Tool for Embedded IP Cores...	528
<i>Haihua Shen, Yunji Chen, and Jing Huang</i>	
Formal Verification of a Ubiquitous Hardware Component.....	536
<i>Lu Yan</i>	
Model Optimization Techniques in a Verification Platform for Classified Properties.....	542
<i>Ming Zhu, Jinian Bian, and Weimin Wu</i>	

Using Model-Based Test Program Generator for Simulation Validation.....	549
<i>Youhui Zhang, Dongsheng Wang, Jinglei Wang, and Weimin Zheng</i>	

Track 11 Software Tools for Embedded Systems

A New WCET Estimation Algorithm Based on Instruction Cache and Prefetching Combined Model.....	557
<i>Guowei Wu and Lin Yao</i>	

A Component-Based Model Integrated Framework for Embedded Software.....	563
<i>Wenzhi Chen, Cheng Xie, and Jiaoying Shi</i>	

A Cooperative Web Framework of Jini into OSGi-based Open Home Gateway.....	570
<i>Zhang-Long Chen, Wei Liu, Shi-Liang Tu, and Wei Du</i>	

A Structure Modeling Method for Multi-task Embedded Software Design.....	576
<i>Jiamei Cai, Tieming Chen, and Liying Zhu</i>	

Chaos-Model Based Framework for Embedded Software Development.....	582
<i>Huifeng Wu, Jing Ying, Xian Chen, Minghui Wu, and Changyun Li</i>	

Hierarchical Integration of Runtime Models.....	589
<i>Cheng Xie, Wenzhi Chen, Jiaoying Shi, and Lü Ye</i>	

Object-Oriented Software Loading and Upgrading Techniques for Embedded and Distributed System.....	595
<i>Bogusław Cyganek</i>	

Preserving Consistency in Distributed Embedded Collaborative Editing Systems.....	601
<i>Bo Jiang, Jiajun Bu, and Chun Chen</i>	

Author Index.....	607
--------------------------	------------

Embedded Software and Systems

First International Conference, ICESS 2004, Hangzhou,
China, December 9-10, 2004, Revised Selected Papers

Wu, Z.; Guo, M.; Chen, C.; Bu, J. (Eds.)

2005, XX, 612 p., Softcover

ISBN: 978-3-540-28128-3