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Improved hard real-time scheduling and transformations for embedded Streaming Applications

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**Improved Hard Real-Time
Scheduling and Transformations
for Embedded Streaming Applications**

Jelena Spasić

**Improved Hard Real-Time
Scheduling and Transformations
for Embedded Streaming Applications**

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Improved Hard Real-Time Scheduling and Transformations
for Embedded Streaming Applications
Jelena Spasić. -
Dissertation Universiteit Leiden. - With ref. - With summary in Dutch.

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Mojoj porodici
To my family

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List of Abbreviations

ADF	Affine Dataflow
BF	Best-Fit
BFD	Best-Fit Decreasing
CDP	Constrained-Deadline Periodic
CPU	Central Processing Unit
CSDF	Cyclo-Static Dataflow
DCT	Discrete Cosine Transform
DLP	Data-Level Parallelism
DM	Deadline Monotonic
DPEM	Data Parallel Energy Minimization
DSE	Design Space Exploration
EDF	Earliest Deadline First
EE	Energy Efficient
ESL	Electronic System-Level
FF	First-Fit
FFD	First-Fit Decreasing
FFID	First-Fit Increasing Deadlines
FIFO	First-In First-Out

FPGA	Field-Programmable Gate Array
GPU	Graphics Processing Unit
HSDF	Homogeneous SDF
ICP	Integer Convex Programming
IDP	Implicit-Deadline Periodic
ILP	Integer Linear Programming
ISA	Instruction-Set Architecture
ISPS	Improved Strictly Periodic Scheduling
ISS	Instruction Set Simulators
ITRS	International Technology Roadmap for Semiconductors
KPN	Kahn Process Network
LLF	Least Laxity First
LP	Linear Programming
LTE	Long-Term Evolution
MIDCP	Mixed Integer Disciplined Convex Programming
MJPEG	Motion JPEG
MoC	Model of Computation
MPSoC	Multi-Processor System-on-Chip
NoC	Network-on-Chip
NP	Non-deterministic Polynomial-time
PE	Performance Efficient
PLP	Pipeline-Level Parallelism
PM	Power Management
PPN	Polyhedral Process Network

PS	Periodic Scheduling
RM	Rate Monotonic
RSD	Reed Solomon Decoder
RTA	Response Time Analysis
RTL	Register-Transfer-Level
SDF	Synchronous Data Flow
SPS	Strictly Periodic Scheduling
STS	Self-timed Scheduling
TLP	Task-Level Parallelism
VFS	Voltage-Frequency Scaling
VLE	Variable Length Encoder
WCET	Worst-Case Execution Time
WF	Worst-Fit
WFD	Worst-Fit Decreasing

