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 FOR RESEARCHER TRAINING IN ENGINEERING SCIENCES

**V4 Seminars for Young Scientists on Publishing Techniques
 in the Field of Engineering Science**


**General structure of extended
 abstracts for conferences**

*Alexandra Fodor, PhD.
 Technical University of Cluj-Napoca*



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Course overview




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- Differences compared to journal abstract
- Mandatory sections
- Role and description of different sections
- Importance of preliminary results
- Additional tips for writing an outstanding extended abstract


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**Journal abstract vs. extended conference
 abstract**




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What should be included?


- Journal abstract:**
 - 300 words or less;
 - first section of a journal paper;
 - summarizes the main aspects covered in the paper.
- Extended conference abstract:**
 - 2-10 pages (depending on the conference);
 - preview of the full paper;
 - includes a journal-size abstract (summary);
 - contains comparisons to related work, preliminary results and other details expected in a research paper but not in a journal abstract.

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Journal abstract vs. extended conference abstract




What **should not** be included?


- Journal abstract:
 - detailed background information;
 - references;
 - abbreviations;
 - images, figures, tables, or references to them.
- Extended conference abstract:
 - too much detailed data, measurements, references;
 - paragraphs that are not original but are not cited;
 - future work.

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Extended conference abstract




Has to answer the following questions:


1. What topic does the research cover?
2. What is your approach on the topic?
3. What is the novelty of your research?
4. What methods and results will you discuss at the conference?

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Mandatory sections



The extended abstract must contain the following sections:

- Summary (Abstract) and Keywords;
- Motivation/Description of Work/Methodology;
- Findings/Results;
- Conclusions (optional);
- Acknowledgements (optional);
- References.

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Mandatory sections

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Title of the Abstract

Li, D., Wu, Y. Yang, W. S. Tanaka?
Department of Electronics, Tsinghua University,
Beijing, China
E-mail: yw@semic.mii.cn

Summary: An abstract of maximum 120 words should be submitted for the abstract. The abstract should contain the following information: the title of the paper, the authors, the journal name, the volume number, the issue number, the year of publication, the page numbers, and the keywords. The abstract should be written in a concise and clear manner, and should not exceed the word limit.

Keywords: List three to five keywords which cover the main content of the paper.

Methodology and Description of Work

The abstract should be followed by a brief description of the methodology and the description of the work. This section should be written in a concise and clear manner, and should not exceed the word limit.

Fig. 1. The error curves against iteration. Results from the same data for the above figure.

Results

This is a section to present the results of the work. It should be written in a concise and clear manner, and should not exceed the word limit. It should include the following information: the results of the work, the conclusions, and the future work.

Please use the space provided in the following: abstract, title, authors, keywords, methodology, results, conclusions, and future work.

Example for the title: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805.

Example for the authors: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805. Example for the keywords: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805. Example for the methodology: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805. Example for the results: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805. Example for the conclusions: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805. Example for the future work: Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805.

Fig. 2. Example of a photograph of a building. Fig. 3. Example of a photograph of a building.

If you need to include a photograph, it should be included in the abstract. It should be written in a concise and clear manner, and should not exceed the word limit.

Acknowledgements

This section is for acknowledging the support of the work. It should be written in a concise and clear manner, and should not exceed the word limit.

References

- [1] Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805.
- [2] Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805.
- [3] Li, D., Wu, Y. Yang, W. S. Tanaka, 2008, IEEE Transactions on Microwave Theory and Techniques, 56(12), 2800-2805.

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Summary (Abstract) and Keywords

Summary:

- First section (after the title);
- Typically 200 words;
- Must make sense all by itself;
- Must contain:
 - Overall purpose of the study;
 - Investigated research problem;
 - Basic approach;
 - Major findings;
 - Brief summary of your conclusions.

Keywords

Keywords: Teacher, 21st century, classroom, learning, teaching.


Method

Results

The results of the study show that the number of teachers in the classroom is a significant factor in determining the number of students. The graph shows that as the number of teachers increases, the number of students decreases. This suggests that a higher number of teachers is associated with a smaller number of students in the classroom.


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Summary (Abstract) and Keywords




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Summary example:

Summary: Power dissipation for processors used in personal computers evolved along the evolution of processor capabilities, translated also into significant amount of heat that must be removed from the cores. The current research aims to bring a decrease in the total power consumption of a processor, by proposing a new task allocation method for multicore devices. The proposed method implies transferring a high-load task between the available cores depending on time and temperature rise on a given core. It has been shown that utilizing the proposed method, the temperature increase has been reduced with 2.67%, thus decreasing the amount of total power consumption of the system. The proposed task allocation algorithm can be employed successfully in real-time operating systems, as well as for the new emerging 3D technology processors, for which the thermal management is still an ongoing issue.

- Investigated research problem
- Overall purpose of the study
- Basic approach
- Major findings
- Conclusions



Summary (Abstract) and Keywords




Summary example – what is missing?


Summary: The paper examines the feasibility of using vapour phase or infrared reflow soldering technologies for multi-layer ceramic chip (MLCC) and disk ceramic capacitors by employing the pin-in-paste technology. During practical experiments recommendations are made for optimizing the thermal profiles used when soldering these types of components in order to minimize the drift in the capacitance and ESR values of these types of capacitors.

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Summary (Abstract) and Keywords




Summary example – what is missing?

Summary: The paper examines the feasibility of using vapour phase or infrared reflow soldering technologies for multi-layer ceramic chip (MLCC) and disk ceramic capacitors by employing the pin-in-paste technology. During practical experiments recommendations are made for optimizing the thermal profiles used when soldering these types of components in order to minimize the drift in the capacitance and ESR values of these types of capacitors.


- 1st sentence summarizes the problem and purpose;
- Approach – “practical experiments” – lacks information;
- Findings – “optimizing the thermal profiles” – lacks information;
- Conclusions – none;
- Unexplained abbreviations – never!

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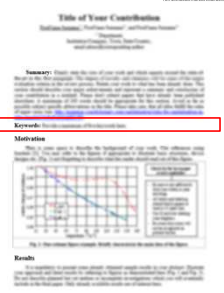


Summary (Abstract) and Keywords



Keywords:

- Immediately after summary
- 5 – 10 words;
- Will be used by search engines to locate your paper;
- Also used to assign papers to review committees;
- Must be words that appear often in your paper or are closely associated with the content of the paper.



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Summary (Abstract) and Keywords

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Summary: Power dissipation for processors used in personal computers evolved along the evolution of processor capabilities, translated also into significant amount of heat that must be removed from the cores. The current research aims to bring a decrease in the total power consumption of a processor, by proposing a new task allocation method for multicore devices. The proposed method implies transferring a high-load task between the available cores depending on time and temperature rise on a given core. It has been shown that utilizing the proposed method, the temperature increase has been reduced with 2.67%, thus decreasing the amount of total power consumption of the system. The proposed task allocation algorithm can be employed successfully in real-time operating systems, as well as for the new emerging 3D technology processors, for which the thermal management is still an ongoing issue.

Good keywords: power dissipation, multicore, task allocation, temperature management.

Bad keywords: the, method, system, technology, algorithm.

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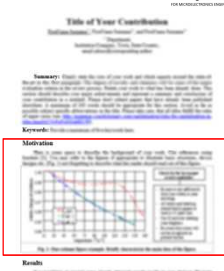
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Motivation/Description of Work/Methodology

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- Background information;
- Problem statement;
- Importance of your work;
- Approach description;
- Why do we care about the problem and the results?
- May contain figures with appropriate reference to them;
- Always cite what is taken from literature!



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Motivation/Description of Work/Methodology

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Motivation

Currently, an operating system is developed to perform parallel processing meaning that tasks are executed in parallel, on multicore systems, each task being allocated depending on the load on each core.

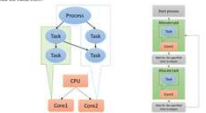


Fig. 1. OS task allocation method (left) vs. Proposed task allocation method (right)

The rules of task allocation in multi-core based parallel systems include: firstly, to reduce communication overhead, assign threads that communicating frequently to the same processing node; secondly, all the threads belonging to the same process must be assigned to the same processing node; the reason is that threads in the same process share the same memory space, and each processing node have independent memory space in message passing system; thirdly, to reduce the context-switching overheads of processors, it's better not to assign multiple processes to the same core; fourthly, keep load balancing among processing nodes and cores [1]. But not all tasks can be divided into threads and can be allocated on cores as the previous algorithm states. When dealing with some-thread tasks that have the capacity of overloading a core, the nearest to temperature is significant, then some methods for task allocation must be required.

The proposed method monitors having one task that loads a core to 100%. The method described hereby implies allocation of that task successively, on all the cores the CPU has. The allocation algorithm resembles a FPSM signal: the task is switched from one core to another during an execution, after a certain time interval. The flowchart for both the OS task allocation procedure and the proposed allocation method are shown in figure 2.

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Findings/Results

Results



Results

Two multicore systems were used for measuring the temperature in case the proposed task allocation method is employed, one system that uses the i7-2640M processor, and one containing i7-3612QM processor, both from Intel. Sample results are presented in figure 2.

Acknowledgment

References

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Importance of preliminary results

- They are your ticket to the conference;
- Preliminary results show that your work has scientific value;
- Any seeker of your abstract wants to learn about the findings of your research;
- Preliminary results support your ideas, assumptions and methods.
- They offer a preview to your work state.

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Findings/Results

Results

Two multicore systems were used for measuring the temperature in case the proposed task allocation method is employed, one system that uses the i7-2640M processor, and one containing i7-3612QM processor, both from Intel. Sample results are presented in figure 2.

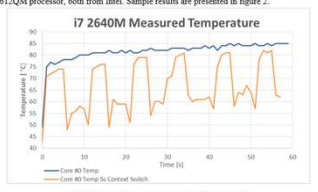


Fig. 2: Core #0 temperature for i7 2640M processor

The graph above shows the case where the measurements are performed on the i7 – 2640M processor and reveals that the maximum temperature measured during the application of context switching algorithm is lower than when the same task is allocated on one core.


Acknowledgment

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Conclusions


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- What are the implications of your answer?
- Are your results general, potentially generalizable, or specific to a particular case?
- Principles drawn from your results;
- Any exceptions, problems, limitations of your research;
- Recommendations.

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Acknowledgements



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- Before the "References" section;
- Usually the paragraph is provided from the acknowledged party;
- Always give credit!




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References


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- Last section of the abstract;
- Do not use too many references, generally five is enough for a two-page abstract.
- Order and discipline!
 - Alphabetically;
 - Text cite order;




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Additional tips



Abstract formatting


- Most extended abstracts have a template – do not deviate from it!

Example (SIITME2018 abstract template):


We strongly recommend you to use this MS-Word template!!! If not, please adhere to its style as closely as possible, using the following formats: paper format: DIN A4 = 297 x 210 mm; page type area: upper and bottom margin: 25 mm, outer margin: 20 mm, inner margin: 25 mm; paragraph format: line space: single, spacing before paragraphs: 6 pt, spacing before titles: 12 pt, no intent, text alignment: justified, title alignment: centered or left, figure capture: centered; letter type: Times New Roman, letter size: 12 pt, letter size in titles: 22 or 18 pt; letter size in figure/tables capture and references: 11 pt. Underline the presenting author and provide the email address of the corresponding author. For photos and tables, use the templates from below.

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Common pitfalls




- Do not use abbreviations or acronyms unless defined first;
- Avoid jargon, anything obscured must be explained;
- Avoid questions in the abstract;
- Repetition of statements is not desired;
- The abstract should not include grand sweeps of history.

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Additional tips



- The extended abstract should be understood in less than one hour;
- Align your abstract to the conference focus;
- Stick to the limits imposed by the conference;
- Use straightforward language and sentence structure;
- Get your abstract proofread by a colleague.
- Practice makes perfect!

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