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

General structure of extended abstracts for conferences

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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

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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

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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

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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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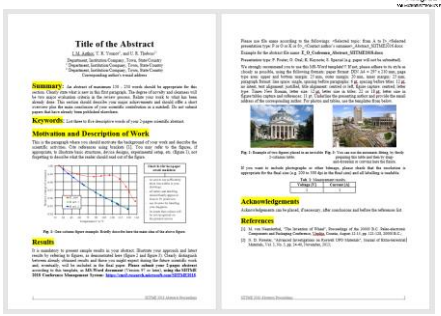

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Summary (Abstract) and Keywords

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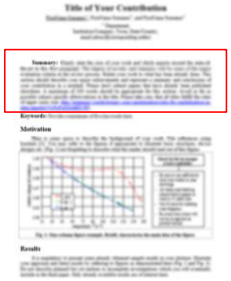
Summary:

- 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.



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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

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Summary (Abstract) and Keywords

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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 there 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

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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 there 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

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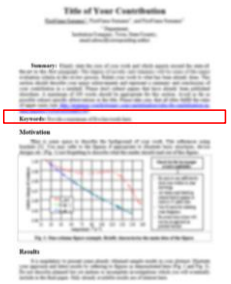
Keywords:

- 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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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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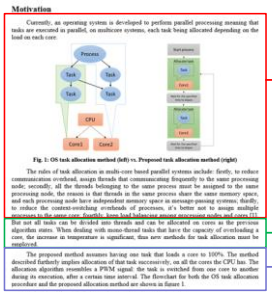

→ Background information

→ Problem statement and importance of work.

→ Approach description

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Findings/Results

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- Most significant part of the abstract;
- What is the answer?
- Present sample results;
- Do not describe incomplete investigations;
- Illustrate results by referring to figures.

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Importance of preliminary results

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- 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

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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.

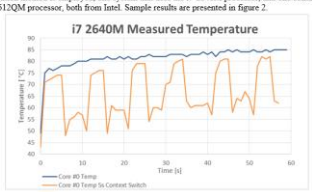

Fig. 2: Core #0 temperature for i7 2640M processor

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.

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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

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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

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- 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

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- 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!