Multicore Embedded Computing Systems (MECS) Lab
Technical Paper Writing Guidelines

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TEMPLATE GUIDELINES:

T1. Use MS Word for drafts, unless you have a lot of equations, in which case Latex may be a better option. MS Word is however much easier to work with, allowing for quick modifications, review tracking, and review comments. Get EXTREMELY familiar with MS Word. Try to get the latest edition of MS Office installed on your computers. You can have MS Office installed for free on your computers that you use for research. Talk to John Seim, the ECE Department lab manager.

T2. For illustration/drawings, use MS Powerpoint or MS Visio to create your illustration and then save the slide as a .tiff file that can be copied and pasted into an MS Word document easily.

T3. For data plots and experimental results figures , you can use MS Excel, or the open source Gnuplot tool, or Matlab to create result plots and then copy the plots to your draft

T4. Every conference/journal has a page limit, and often an MS Word/Latex document template. Find this information on the conference or journal web page before embarking on writing your paper.

T5. It is a good idea (and will make your life easier) if you use MS Word or Latex drafts from previous papers published in the group and replace their content with your own. Obviously, use the draft relevant to the conference/journal you are targeting (e.g. use a prior ASPDAC Word document for an ASPDAC paper you are working on).

GENERAL GUIDELINES:

G1. Every paper has a fairly well-established structure that you can gather by looking at previous papers from our group, or proceedings of the conference or journal you are targeting. Usually you have the title and abstract, followed by the following sections: Introduction, Related Work, Background, Proposed Research, Experimental Results, Conclusion, and References. Note: titles of sections can be changed, and you can also have more sections, if appropriate.

G2. Use the “Introduction” and “Conclusion” sections to *sell* your paper.

G3. When describing experiments, include all information on parameters and procedures so that another person reading the description would be able to reproduce the experiments.

G4. Make it clear to the reader what the focus and contribution of the paper are and why others would want to read this paper (i.e., why it should be accepted for publication).

G5. Indicate the contributions of the paper at the end of the abstract, the introduction, and the conclusion.

G6. Write the body of the paper as if the abstract is not there.

G7. Have a Related Work section that compares your work to the related work in the literature – this could go after the Introduction if the reader will understand enough to comprehend the comparison, or can wait until the end if the reader needs the details in the paper to understand the contrast. Do not insult the work of others.

G8. Define terminology, variables, etc., *before* they are used.

G9. Avoid using one sentence paragraphs.

G10. Avoid paragraphs longer than half of a page.

G11. Most conferences/workshops are “double blind-review” which means you should not put information that identifies the authors of the paper. This allows for fair reviews by your peers. If the conference/workshop website states that it’s “blind review”, you can put in information that identifies the authors. In this case, ‘blind’ only refers to the fact that reviewers’ names will not be revealed to you. For journals, you always put author names/details – i.e., journals are always ‘blind review’.

INTRODUCTION

I1. The “Introduction” section should:
(a) discuss general topic area and set framework, e.g., “In emerging multi-processor systems-on-chip (MPSoCs), efficient networks on chip (NoC) architectures are essential”.
(b) clearly state the problem to be solved
(c) clearly state the contributions and novel aspects of the paper
(d) devote one or two sentences to the relationship to prior work
(e) overview the entire paper.

I2. When ending the “Introduction” section with an overview of the paper, do not use the same format for each sentence. For example, instead of: In Section 2, ... In Section 3, ... Use: In Section 2, ... The ... is discussed in Section 3.

I3. When ending the “Introduction” section with an overview of the paper, do not use the same verb for each sentence. Some suggested alternatives, to use as appropriate, are: examines, explores, describes, discusses, presents, reviews, shows, illustrates, and summarizes.

I4. Write the “Introduction” section as if the “Abstract” did not exist; the “Introduction” should be self-contained and not require information presented in the “Abstract”.

SECTIONS

S1. Each section should terminate logically and smoothly, not just stop. One way to do this is to summarize the section. Another way to do this is to forecast the following section.

S2. Sections and subsections should be numbered (e.g., “1. Introduction,” “5.5. Analysis”).

S3. Do not include a Subsection X.1 unless a Subsection X.2 is also included.

S4. Sections are typically labeled in bold and left justified. Three examples follow.
X. Section Title
X.1. Subsection Title
X.1.1. Subsubsection Title

S5. In the text, refer to sections and subsections as “In Section 7, ...,” “In Subsection 7.3, ...,” and “In Subsection 7.3.1, ..”. (“Subsubsection” sounds foolish).

S6. In a phrase such as “In the next section, ...,” use a lower case “s”.

FIGURES

F1. Figures should be numbered consecutively in the paper with integers starting at 1.

F2. Figure *i* should be the *i*-th figure that is referred to in the text.

F3. Figures should be centered horizontally on the page, or centered horizontally within the column if a two column format is being used.

F4. A figure caption should be single spaced, left justified, and located under the figure to which it refers.

F5. Label sub-figures with lower case letters, e.g., “a,” “b,”. Center the label below the sub-figure. Do not use a separate caption for each sub-figure. Use the following format:

> **Figure 2:** Results of simulation studies: (a) experiments with Cholesky approximation, and (b) experiments with Barnes approximation.

F6. Put figures in the text, not at the end of the paper.
F7. Use one blank line above a figure, one blank line between the figure and the figure caption, and one blank line below the figure caption.
F8. In text, when referring to the figure with number X, use “Figure X.” When using a phrase like “in the figure,” use a lower case “f”.
F9. The capitalization of a word used as a label in a figure should be the same as when that word is used in the text, e.g., a figure label would be “interconnection network” not “Interconnection Network”.

TABLES

T1. For tables, follow the same rules as for figures.

EQUATIONS

E1. Equation numbers, contained in parentheses, are specified right-justified on the same line as the equation.
E2. Equations should be numbered consecutively in the paper with integers starting at 1.
E3. In text, when referring to the equation with number X, use “Equation X”. When using a phrase like “in the equation,” use a lower case “e”.

CONCLUSIONS

C1. The “Conclusions” section should:
(a) relate back to contributions/motivation
(b) answer the question: what can the readers do now that they could not before?
(c) make a concise and brief case for why should the reviewer accept it?
(d) should be brief: 1 paragraph in length

REFERENCES

R1. At most 1/3 of the references should be to papers whose coauthors overlap with the coauthors of the paper being written.
R2. Typically in almost all conferences and journal papers, references should be numbered, e.g., [1], [2] etc. A few journal papers may require reference labels to be a variant of the format [First author’s last name, et al., year if publication], e.g. [Pasricha et al. 2010]
R3. The references section heading is not numbered.
R4. The references section is labeled in bold and left justified.
R5. Use the following reference format by default if space is not an issue:
Journal Article –
[2] N. Kapadia and S. Pasricha, “A framework for low power synthesis of interconnection networks-on-chip with multiple voltage islands”, *Integration, the VLSI Journal*, Vol, 45, No. 3, Jun 2012, pp. 271-281.
Journal Article in a special issue –

[4] S. Pasricha, M. Luthra, S. Mohapatra, N. Dutt, and N. Subramanian, "Dynamic backlight adaptation for low power handheld devices", *IEEE Design and Test*, Special Issue on Embedded Systems for Real Time Embedded Systems, Sep-Oct 2004, pp. 398-405

Conference Paper –

[7] Y. Xiang and S. Pasricha, "Harvesting-aware energy management for multicore platforms with hybrid energy storage", *ACM Great Lakes Symposium on VLSI (GLSVLSI)*, May 2013, pp. 25-30.

Book –

[14] S. Pasricha and N. Dutt, *On-Chip Communication Architectures*, Morgan Kauffman, 2008

Book Chapter –

[21] S. Pasricha and Y. Zou, "Hybrid partially adaptive fault tolerant routing for 3D networks-on-chip", in *Embedded Systems: Hardware, Design, and Implementation*, K. Iniewski, ed., John Wiley & Sons, Inc., Hoboken, NJ, USA, 2012, pp. 47-79.

Thesis –

[24] S. Pasricha, *COMMSYN: On-Chip Communication Architecture Synthesis for Multi-Processor Systems-on-Chip*, Ph.D. Thesis, University of California, Irvine, 2008.

System Documentation –

[29] AMD, *AMD Family 10h Server and Workstation Processor Power and Thermal Data Sheet*, Publication # 43374, Revision 3.19, Jun. 2010.

Web links and documentation –

[34] Standard Performance Evaluation Corporation (SPEC), SPECpower_ssj2008, http://www.spec.org/power_ssj2008. Last accessed 12/12/2011.

R6. Use the following reference format by default if space is an issue:

Journal Article –

[2] N. Kapadia, S. Pasricha, "A framework for low power synthesis of interconnection networks-on-chip with multiple voltage islands", *Integration, the VLSI Journal*, Jun 2012.

Journal Article in a special issue –

[4] S. Pasricha, et al., "Dynamic backlight adaptation for low power handheld devices", *IEEE Design and Test*, Sep-Oct 2004.

Conference Paper –

[7] Y. Xiang, S. Pasricha, "Harvesting-aware energy management for multicore platforms with hybrid energy storage", *ACM GLSVLSI*, 2013.

Book –

Same as above

Book Chapter –

[21] S. Pasricha, Y. Zou, "Hybrid partially adaptive fault tolerant routing for 3D networks-on-chip", in *Embedded Systems: Hardware, Design, and Implementation*, K. Iniewski, ed., John Wiley & Sons, Inc., 2012.

Thesis –

Same as above

System Documentation –

Same as above

Web links and documentation –

[34] Standard Performance Evaluation Corporation (SPEC), SPECpower_ssj2008, http://www.spec.org/power_ssj2008.

R7. If a referenced document has not yet appeared, state "to appear" in place of the page numbers.

R8. Use three-letter abbreviations for the names of months for all months except May, June, and July (e.g., "Jan.").

R9. Represent ordinal numbers by symbols instead of names, e.g., write "*8th IEEE ...*" instead of "*Eighth IEEE ....*"

R10. Use the notation "[2], [3]" instead of "[2,3]".

R11. Do not begin a sentence with a reference. For example, instead of: “[8] uses a formal proof to...” state: “In [8], a formal proof is used to....”
R12. Try to reference papers published in top tier conferences and journals
R13. Make sure all references mentioned in the text are in the reference list, and vice versa.
R14. Try to reference your own papers if at all possible; it helps to establish your credibility.
R15. Numbered references should appear in the text starting with the lowest number, i.e., the first reference at the beginning of the text should be [1], then [2], [3] etc. Typically this step should be done once the text has been finalized. An easy way to do this in MS Word is to initially use references in an arbitrary manner in the text, and then once the text is finalized, do a global search and replace (CTRL+H) as follows: replace “[1” with [a1”, “[2” with [a2”, …, “[9” with “[a9”. Now all your references will be of the form [a1], [a2], etc. Next, start going through the draft text from the beginning and every time you come across a reference starting with “[a”, do a global search and replace (CTRL+H) with the appropriate number; e.g., if the first reference you come across is [a21], do a global search and replace of “[a21]” with [1]. If the next reference you encounter is [a4], do a global search and replace of “[a4]” with “[2]”, etc.
R16. If the same material (by the same authors) appears in more than one of a journal paper, conference paper, and/or technical report, the first choice to reference is the journal, second conference, third technical report.
R17. Be aware of related work done by members of the program committee and editorial board for conference and journal submissions, respectively. Try to reference papers from these members in your papers; e.g. if you are submitting to DAC, try to look up technical program committee member names from the DAC website and try to include (relevant) references in your work if possible.

TEXT FORMAT

X1. Use italics for words you want to emphasize.
X2. Italicize single letter/symbol variable names, e.g., “core $N - 1$” and “β”.
X3. Use an underline for a term being defined.
X4. Use one space on each side of an equality or inequality symbol. That is, an equation should appear as $N < 8$, *not* $N<8$.

WORDING

W1. Do not use pronouns.
W2. The phrase “in order,” as in “...do this [in order] to accomplish...,” is usually unnecessary.
W3. Avoid using the same verb in adjacent sentences.
W4. Avoid non-technical phrases, e.g., instead of “the probability sky rockets” use “the probability increases rapidly”.
W5. Use “That is,” instead of “In other words”.
W6. Use “alternatively,” instead of “on the other hand”.
W7. Do not use contractions in text, e.g., use “do not” instead of “don’t”.
W8. Write “cannot” as one word and not two.
W9. Only use “since” when referring to an interval of time (e.g., since yesterday); if “since” is being used in the same sense as “because,” use “because”.
W10. Never end a sentence with a preposition.
W11. Use “between” when distinguishing two objects and “among” for three or more objects. For example, “The difference between SIMD and MIMD is ...” and “...distributed among four processors”.

W12. In a context such as “there are fifteen working processors” the number should be written out (“fifteen”) if less than 16; of course, for “$N < 8$” the eight should be the numeral 8.
W13. If “which” is being used in a context where “that” is also appropriate, then use “that” unless it is physically set off by one or two commas. Examples of this rule are:

“I read the paper, which was written by Jones, last weekend”.

“Last weekend, I read the paper that was written by Jones”.

W14. The use of “etc.” in an “e.g.” (for example) list such as “... contemporary multi-core architectures, e.g., Tilera Tile64, Intel SCC, etc., ...,” is redundant.
W15. The term “real time” is two words when used as a noun. It is hyphenated when used as a compound adjective, e.g., “real-time monitoring”.
W16. Do not use the word “thing, “ be more specific.
W17. Look up a grammar book or website if you do not understand the meaning of pronouns, verbs, adverbs, adjectives, prepositions, etc.
W18. Do not use ‘&’ – instead use ‘and’

PUNCTUATION

P1. For quotes, use “ and ” not ".
P2. In a list of three or more elements, such as “A, B, and C,” be sure to put a comma after the item before “and”.
P3. In a list of three or more elements, such as “A, B, or C,” be sure to put a comma after the item before “or”.
P4. Periods and commas go outside a closing quotation mark.
P5. Never have a comma followed by an open parenthesis.
P6. Follow “i.e.” (that is) and “e.g.” (for example) by commas; for example: “one of my students, e.g., Shirish, will ....”.
P7. “Nat’l” and “Int’l” are contractions and do not end with periods.

HYPHENATION

H1. Hyphenate compound adjectives, e.g., “the 30-processor prototype”.
H2. The term “trade-off” is two hyphenated words.
H3. Use the following format for “*i*-th,” e.g., “The *i*-th element...”.
H4. Use a minus sign instead of a hyphen in arithmetic expressions, e.g., N–1. Use a hyphen instead of a minus sign to hyphenate words, e.g., trade-offs.

CHECKING

CH1. If time permits, have another student read your paper to make sure it is understandable to someone other than yourself.
(a) This should be done before your advisor reads the paper.
(b) You should return the favor, i.e., read a paper for that other student.
CH2. Read your paper from beginning to end as if you were a referee trying to find reasons to reject the paper - look for weaknesses in the paper and correct them.