Reviewer: 1  
  
Reviewer: 2  
Below are some possible minor typos:  
  
Page 2, right, line 13: ChangY -> ChangeY.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Fixed, Thanks!

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Page 22, left, line 7: parts of the formula are highlighted in yellow without explanation.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

We supplement some explanations about the formula highlighted in yellow. Please find it on the right side of page 22 (colored in blue).

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Page 29, left, line 5: proof effect -> proof effort?

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Fixed, Thanks!

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
  
Reviewer: 3  
  
Comments to the Author  
Overall, these improvements add considerably rigorousness to the paper, and I only have some minor comments below.  
  
The syntax text explanations could be further improved with explicit references or closer notational similarity to the syntax definitions in the figures. For example, Fig. 3 and text on p. 5: could say "The operand expression (OpExp)..., and address expression (AddExp)" etc.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

We improve the syntax text explanations with explicit references in this version, like “”The operand expression (OpExp)..., and address expression (AddExp). Please find the modifications on page 5 (Sec. 2.1) where the syntax of SPARCv8 language is introduced, and on page 17 (Sec. 4.1) where the syntax of Pseudo-SPARCv8 language is introduced.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
  
The proof sketch of Lemma 2 still needs a bit more explanation (how is Lemma 1 applied here?).

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We add the proof of Lemma 2 in this version, please find it on page 11-12 (colored in blue).

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
  
The global program transition rule on p. 17 should mention M' in the conclusion.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Thanks, it’s a typo and we have fixed M to M’.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
  
Minor comments  
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1. p. 2: ChangY --> ChangeY  
2. p. 4: implementated --> implemented  
3. p. 5: Simple instruction "nop" is not mentioned in the text

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

We add the introduction to instruction “nop”. Please find it on the left side of page 5 (colored in blue).

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
4. p. 7: state of processor, and there is --> state of the processor, and there it is  
5. p. 8: we use block-based model --> we use a block-based model  
6. p. 8: safe and restore instruction rotate --> save and restore instructions rotate  
7. p. 10 (Section 3 overview): mention that refinement is added in Sect. 4  
8. p. 11: assign a \theta --> assign a specification \theta  
9. p. 14: shown as the left side of Fig. 12 -->  shown on the left side of Fig. 12  
10. p. 16: two parts : --> two parts:  
11. p. 16: in specific form as mentioned before --> in the specific form mentioned before  
12. p. 16: states [...] is defined --> states [...] are defined  
13. p. 16: consts: --> consists of:  
14. p. 16: omit special register --> omit special registers  
15. p. 16: program, We --> program, we  
16. p. 16: of switch primitive --> of the switch primitive  
17. p. 16: of current thread --> of the current thread  
18. p. 21: primtive --> primitive  
19. p. 21: abtract --> abstract  
20. p. 21: it's execution --> its execution  
21. p. 24: exisits --> exists  
22. p. 26: It saves local and in registers of current window --> It saves the local and in registers of the current window  
23. p. 26: and call reg\_save --> and calls reg\_save  
24. p. 27: Usedwindow --> UsedWindows (?)  
25. p. 27: of context switch routine --> of the context switch routine  
26. p. 27: set of abstract assembly primitive --> [...] primitives  
27. p. 27: each code blocks --> each code block  
28. p. 28: of context switch/of thread pool --> of the ...  
29. p. 30: implementated --> implemented

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All fixed, thanks!

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