Cost Effective Deployment of Hardware Accelerators Across Logic Simulator Modules

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Abstract—With the continuous growth of the the AI/ML sector and the need to increase the speed of learning and inference tasks, there has been increasing pressure to quickly produce, verify, and iterate on, System-on-Chip (SoC) configurations. These systems are often deployed in safety-critical situations such as autonomous vehicle control, and the correctness of the system is quite literally life or death. They are also being deployed increasingly frequently in the mobile device space. The Apple M1 and subsequent "M" series processors, as well as Google's Pixel processor, are all SoC configurations. This configuration is often space saving and works well for small devices and it is also ultraefficient. It reduces latency by decreasing the physical distance between components. In this paper I explore algorithms for the design of a distributed discrete-event simulator, the problems that they face and solve, and I propose a cost effective solution for simulator implementation.

Index Terms—component, formatting, style, styling, insert

I. INTRODUCTION

The SoC is quickly becoming the gold standard for hardware as consumer tech-giants are attempting to outdo each other in terms of speed, efficiency, and price. At the same time, there has been a relatively recent revolution in the use of ML in consumer gadgets for increasing picture and video quality and verbal and written language processing. There has also been a shove for mass production of a fully autonomous vehicle, which requires custom silicon to be feasible at scale. The avionics industry were relatively early adopters of formal verification techniques for embedded systems; with the growth of the industry and newer, software dependent sub-systems, the task of writing test cases is unwieldy and unrealistic. The industry uses formal verification at the source code level for multiple requirements and sees significant savings for those requirements are recurrent — "a person-month per flight software release" [1].

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$$a + b = \gamma \tag{1}$$

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- The word "data" is plural, not singular.
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 word alternatively is preferred to the word "alternately"
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- Do not use the word "essentially" to mean "approximately" or "effectively".
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- There is no period after the "et" in the Latin abbreviation "et al.".
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An excellent style manual for science writers is [7].

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a) Positioning Figures and Tables: Place figures and tables at the top and bottom of columns. Avoid placing them

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TABLE I
TABLE TYPE STYLES

| Table | Table Column Head | | |
|-------|------------------------------|---------|---------|
| Head | Table column subhead | Subhead | Subhead |
| copy | More table copy ^a | | |

^aSample of a Table footnote.

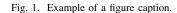


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ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in America is without an "e" after the "g". Avoid the stilted expression "one of us (R. B. G.) thanks ...". Instead, try "R. B. G. thanks...". Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

Please number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use "Ref. [3]" or "reference [3]" except at the beginning of a sentence: "Reference [3] was the first ..."

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the abstract or reference list. Use letters for table footnotes.

Unless there are six authors or more give all authors' names; do not use "et al.". Papers that have not been published, even if they have been submitted for publication, should be cited as "unpublished" [4]. Papers that have been accepted for publication should be cited as "in press" [5]. Capitalize only

the first word in a paper title, except for proper nouns and element symbols.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

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