SPLA: Portable Multi-GPU Implementation of GraphBLAS API

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***Abstract*—This document is a model and instructions for LaTeX. This and the IEEEtran.cls file define the components of your paper [title, text, heads, etc.]. *CRITICAL: Do Not Use Symbols, Special Characters, Footnotes, or Math in Paper Title or Abstract.**

***Index Terms*—graphs, algorithms, sparse linear algebra, GraphBLAS, GPGPU, OpenCL**

I. Introduction

High-performance graph analysis is an actual challenge. [1]

GPGPU for graph analysis is a promising way. Existing solutions demonstrate good performance. Scalable. Problems.

GraphBLAS API [**?**][1] provides a linear algebra based building blocks [2] to create graph analysis algorithms.

GraphBLAS on GPGPU. GraphBLAST: [3], GBTL [**?**]. Problems: not portable, no multi-GPU support.

Contribution

- Design
- Implemented
- Evaluation

II. Solution Description

A. Design Principles

Multi-GPU
Portability
C interface
....

B. Architecture Overview

C. Algebraic Operations

Implemented operations and algorithms for it.

D. Implementation Details

OpenCL, Used libraries, etc

III. Evaluation

What and how.

A. Graph Algorithms

BFS, SSSP, ...

B. Dataset Description

SuiteSparse matrix collection. Table with specific graphs.

C. Evaluation Setup

Hardware description, ...

D. Evaluation Results

TABLE I
Table Type Styles

Table Head	Table Column Head		
	Table column subhead	*Subhead*	*Subhead*
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[a]Sample of a Table footnote.

IV. Conclusion

Work in progress!
And future work
Advanced algorithms for LA operations
More formats for sparse matrices/vectors
C interface
Python package !!!

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.

Identify applicable funding agency here. If none, delete this.

[1]GraphBLAS home page: https://graphblas.org/. Accass date: 07.01.2022.

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