Benchmark Circuits for IBM's Quantum Computer

1 Introduction

IBM's 5 qubit quantum computer [1] supports gates from the Clifford+T gate library. This repository contains some Clifford+T circuits that have been transformed to be executed on IBM's Q5.

2 Benchmark Circuits

The following circuits are available in the folder labeled `original`.

Name	Qubits	Gates	Depth	T-depth	Source
`Full_Adder_c.qc`	4	20	19	7	[2]
`Full_Adder_d.qc`	4	22	15	2	[2]
`Full_Adder_e.qc`	4	21	12	2	[2]
`Toffoli.qc`	3	17	16	6	

References

[1] IBM Q. `https://www.research.ibm.com/ibm-q/`. Accessed: 2017-09-05.

[2] D. Michael Miller, Mathias Soeken, and Rolf Drechsler. Mapping NCV circuits to optimized Clifford+T circuits. In *Reversible Computation - 6th International Conference, RC 2014, Kyoto, Japan, July 10-11, 2014. Proceedings*, pages 163–175, 2014.