EAS 18435-1:2026-08 (E)

Quantum Computing - Hardware Abstraction Layer - Part 1: Descriptions and functional requirements

Contents

Page

European foreword 3
Introduction 4
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 Abbreviations 6
5 Overview 6
5.1 Outline 6
5.2 Primary functionalities 7
5.3 Interfacing considerations 7
6 Quantum instructions 8
6.1 Outline 8
6.2 Initialisation instructions 9
6.3 Inquiring instructions 9
6.4 Execution instructions 12
6.5 Fault handling instructions 14
7 Quantum gates 15
7.1 Outline 15
7.2 Queries about supported gates 15
7.3 Predefined quantum gates 18
8 Libraries 24
8.1 Outline 24
8.2 Library with Optimised Circuits 25
8.3 Library for Fault Tolerant Quantum Computing (FTQC) 26
8.4 Library for Mapping and Routing 27
9 Resource management 28
9.1 Outline 28
9.2 The concept of partition sequences 29
9.3 The concept of check pointing 30
Bibliography 31