

ScaleQsim

1 Instance Manager

| Instance | Value | Ins.Rank |
|------------|-------|----------|
| Node 0...N | | |

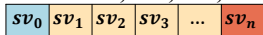
Ins.Status

2 State Generator

Statespace Calculator

Initial State space

$$2^{36} = 68,719,476,736$$



Create Qubit Index

Manage Qubit Index

Qubit Index

1 2 3 4 5 6 ... 36

State Allocator

Active Instance Check

4

Two-phase Partitioning

Node Partitioning

Node 0

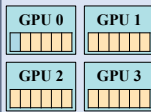
0 ... $2^{36}/N - 1$

Node N

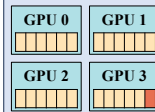
$(N - 1 \times (2^{36}/N))$... $N \times (2^{36}/N) - 1$

GPU Partitioning

Node 0



Node N



Indices Manager

Global Indices Generator 5

READ
qubit index

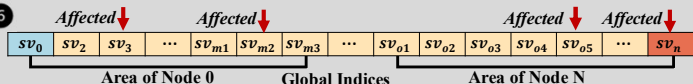
Affected
IndicesBuilder

List of Affected Indices

0000 0001 0010 0011 ... 1111

StateSpace
Mapper

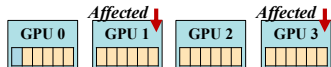
6



7 Kernel Simulator (Node 0)

Translator
(Global to Local)

Kernel
Execution



Kernel Simulator (Node N)

Translator
(Global to Local)

Kernel
Execution

