

**a) Algorithm traditional IPMA**

```
CX(1,2);
CX(0,2);
m = 0;
for _ in [0..meas_count]:
  m += MEASURE(2);
if m ≥ ⌈meas_count/2⌉:
  X(0);
```

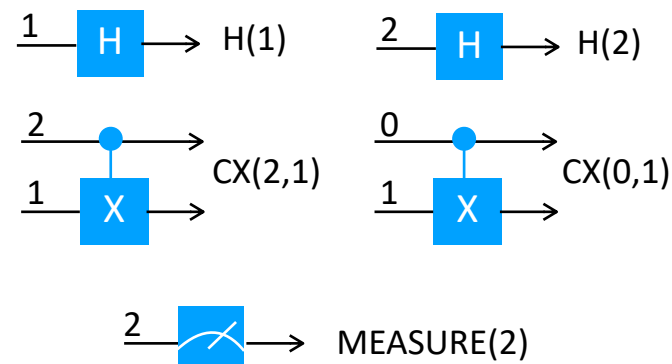
**b) Algorithm CX+H1**

```
H(2);
CX(2,1);
H(1);
CX(0,1);
H(2);
CX(2,1);
MEASURE(2);
```

**c) Algorithm CX+H2**

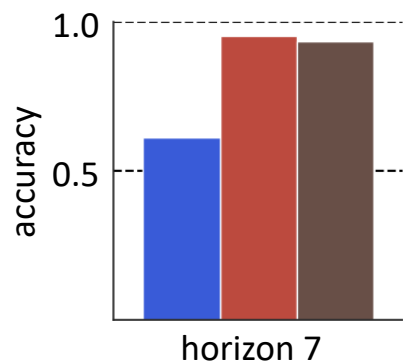
```
H(2);
CX(2,1);
CX(0,1);
H(1);
H(2);
CX(2,1);
CX(0,1);
```

**d) CX+H instruction set**



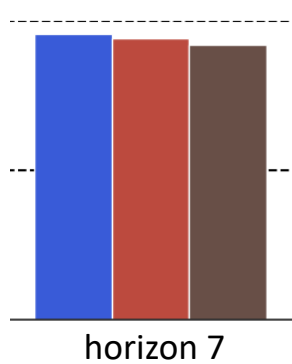
**e) Cambridge hardware**

most noisy qubits

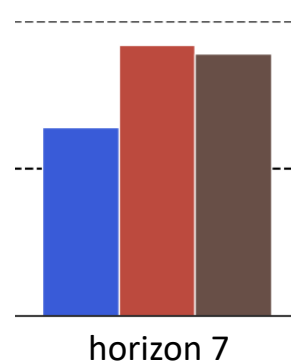


**f) Rochester hardware**

least noisy qubits

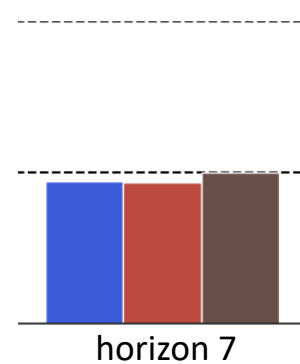


most noisy qubits



**g) Manhattan hardware**

most noisy qubits



**h) Traditional IPMA vs. optimal algorithms with CX+H instruction set**

