

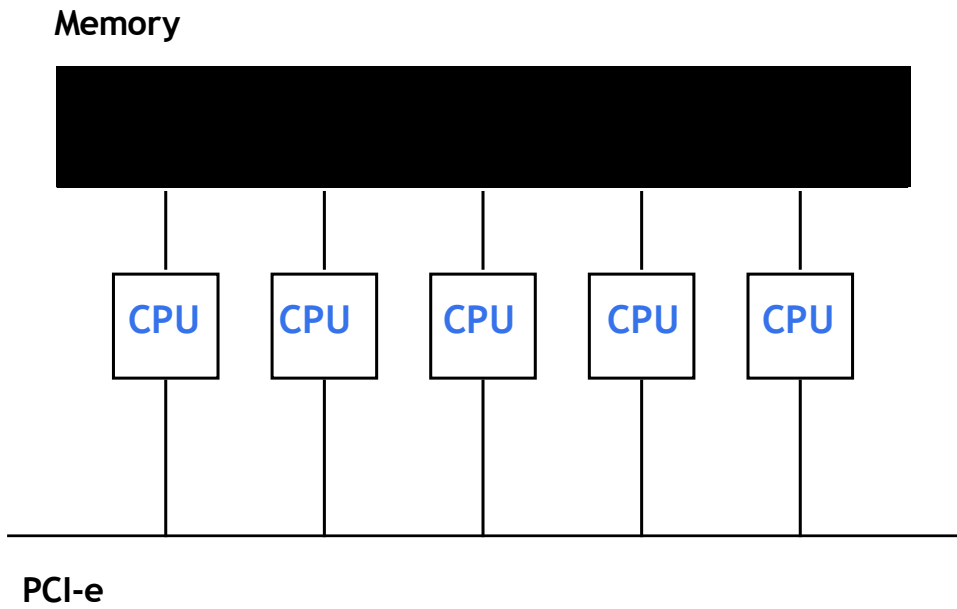


# MULTI-GPU ENVIRONMENTS

# Using Shared Memory

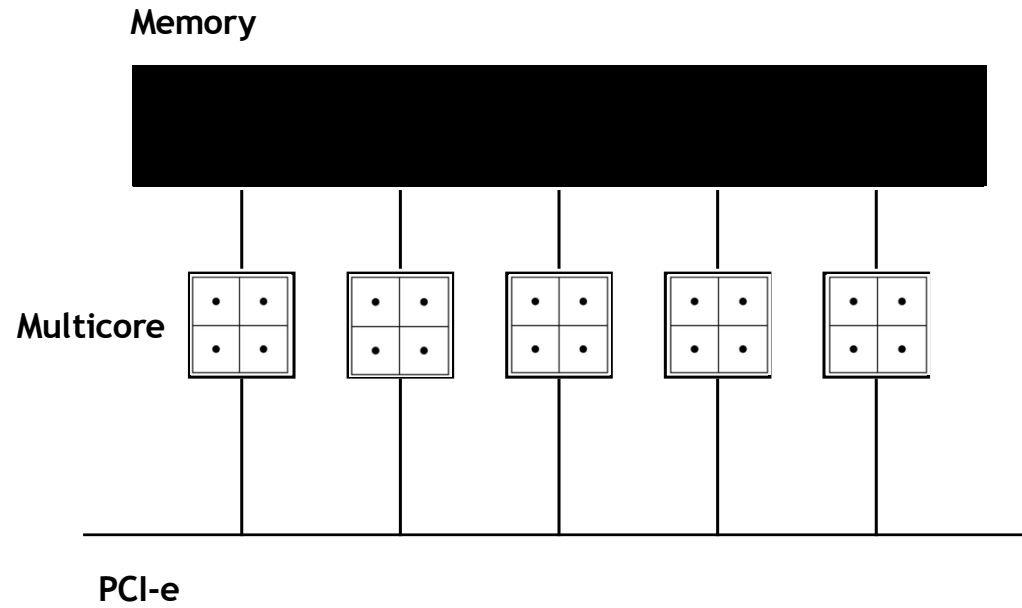
CPU cores

**DATA**



CPU cores

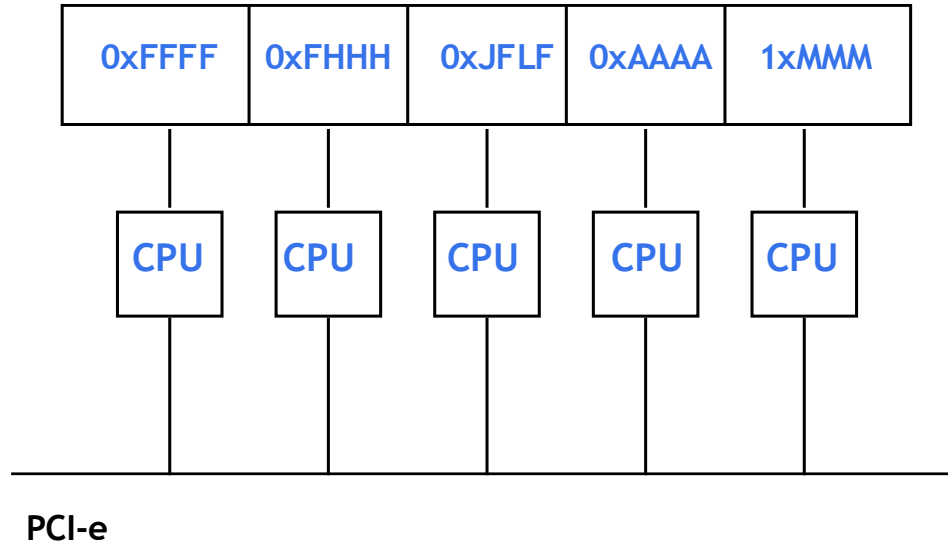
DATA



CPU cores

**DATA**

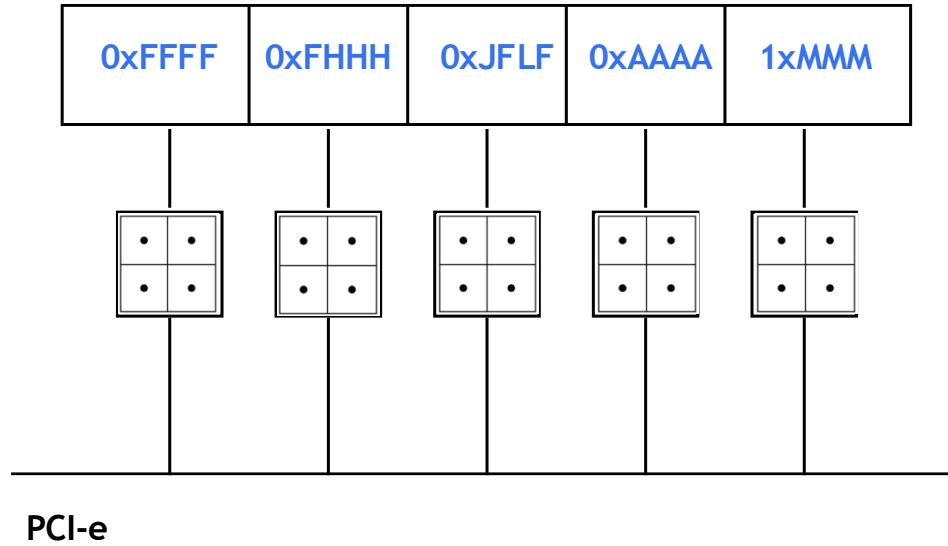
Single Address Space



**Shared Memory Paradigm**

CPU cores  
**DATA**

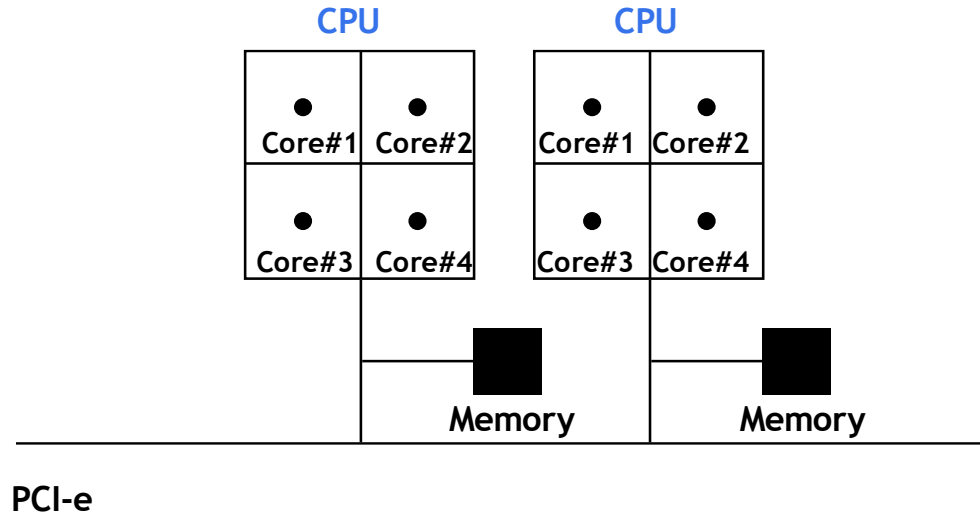
Single Address Space



**Shared Memory Paradigm**

# Using Distributed Memory

CPU cores  
**DATA**

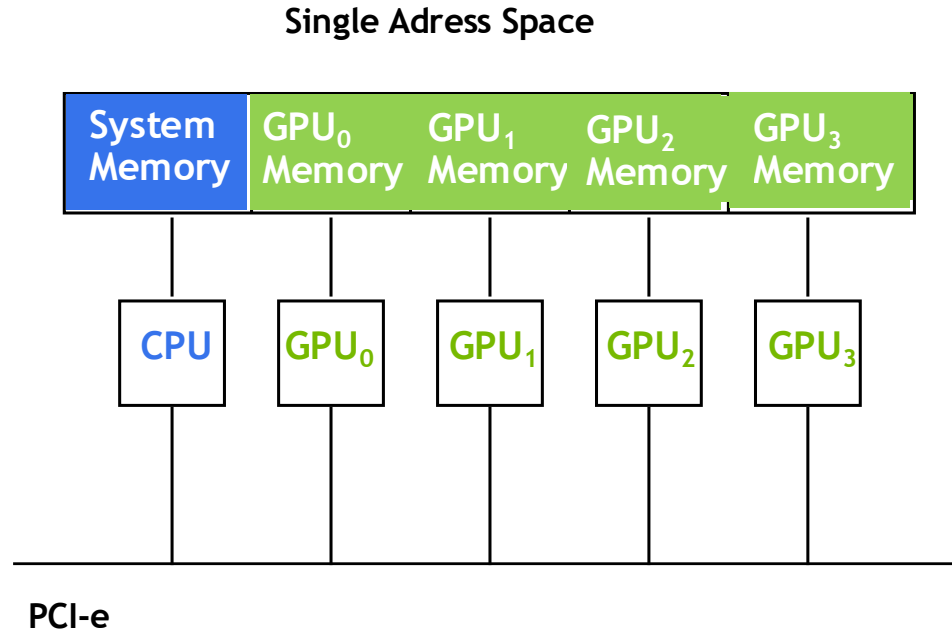


**Distributed Memory Paradigm**



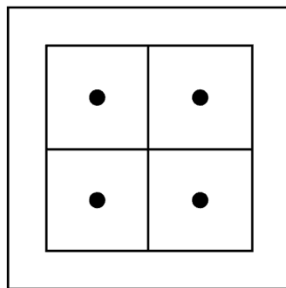
# Using Hibrid Memory Paradigm

# GPU DATA

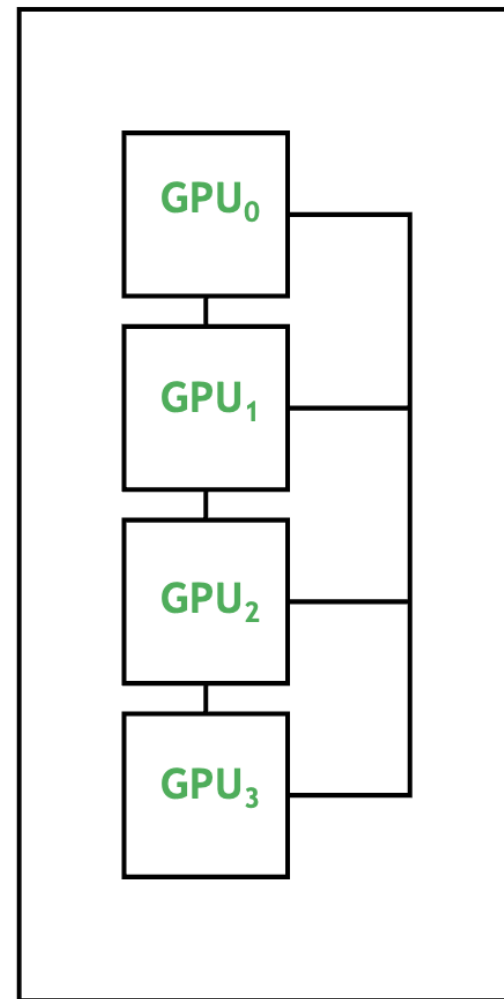


## Hybrid Memory Paradigm

HOST

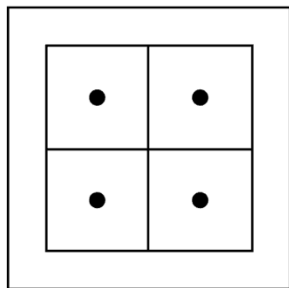


DEVICE

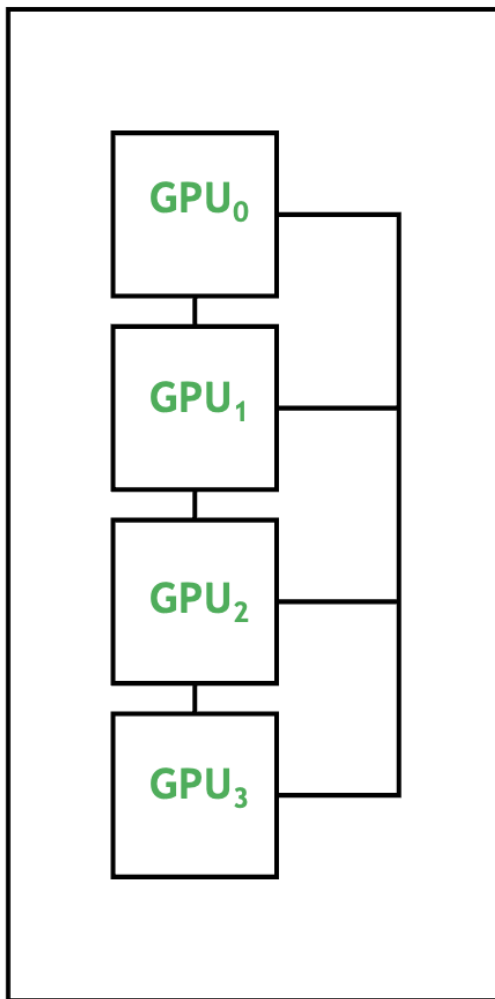


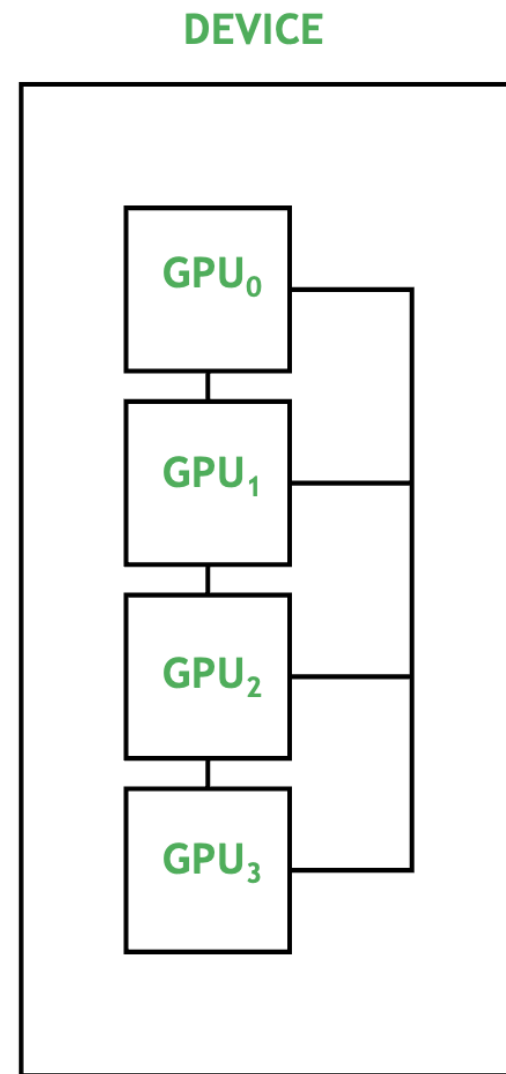
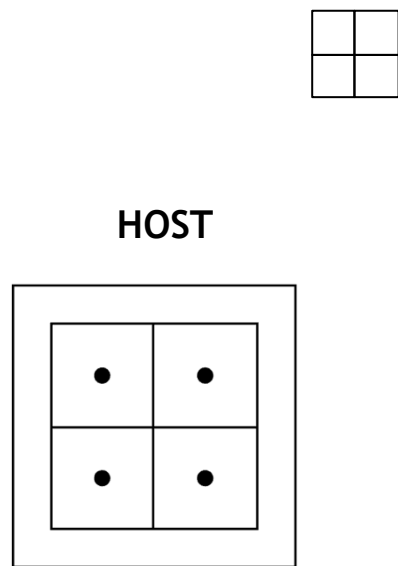


HOST

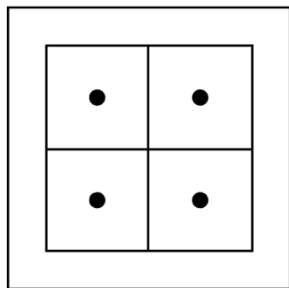


DEVICE

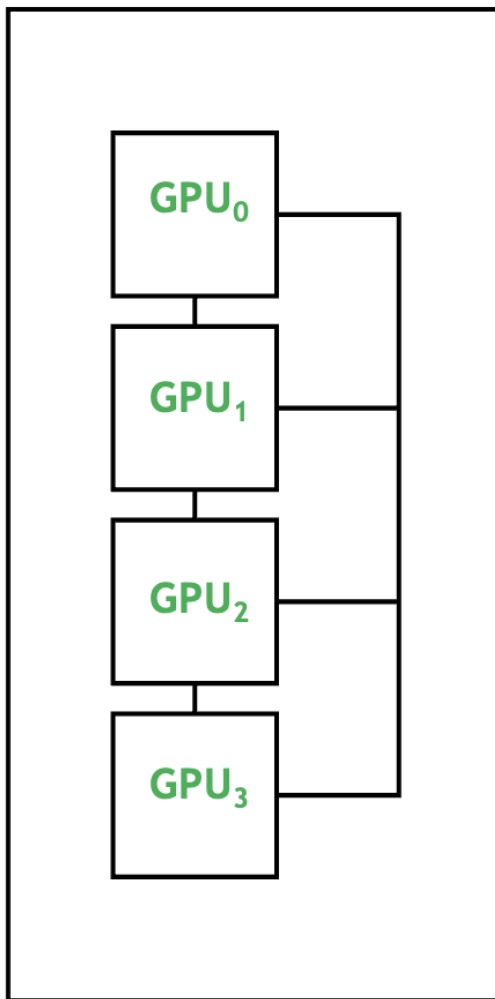




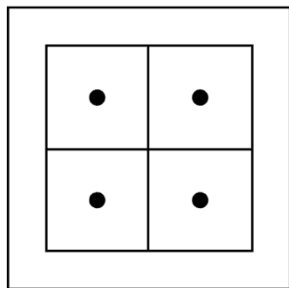
HOST



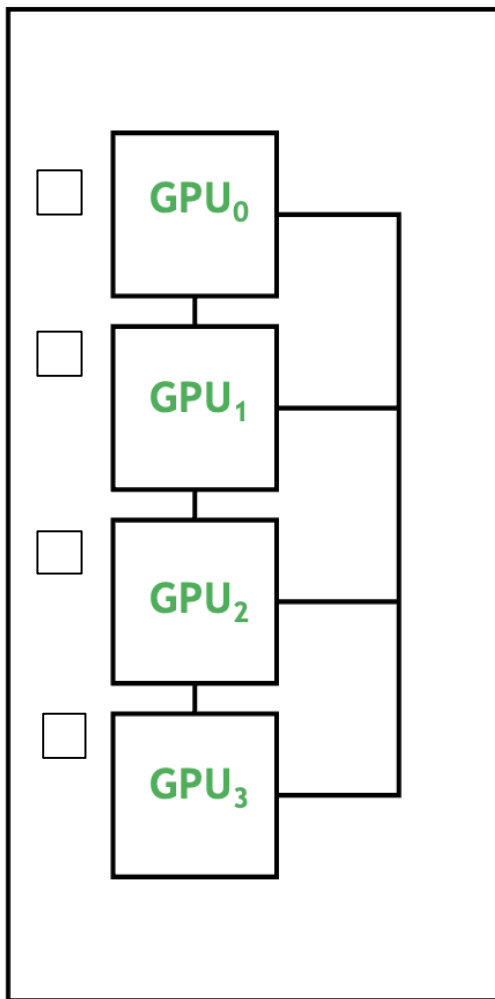
DEVICE



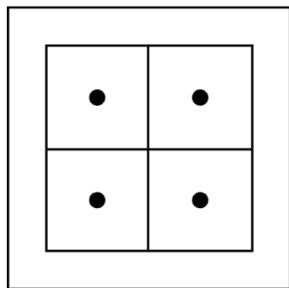
HOST



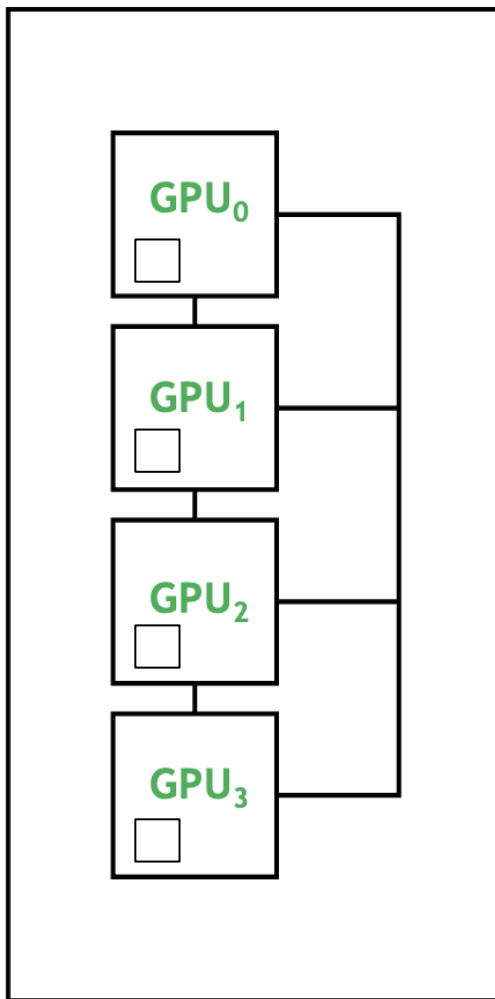
DEVICE



HOST

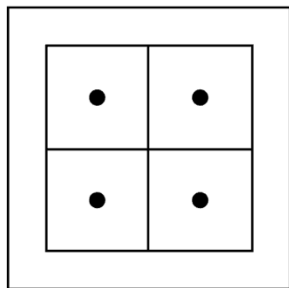


DEVICE

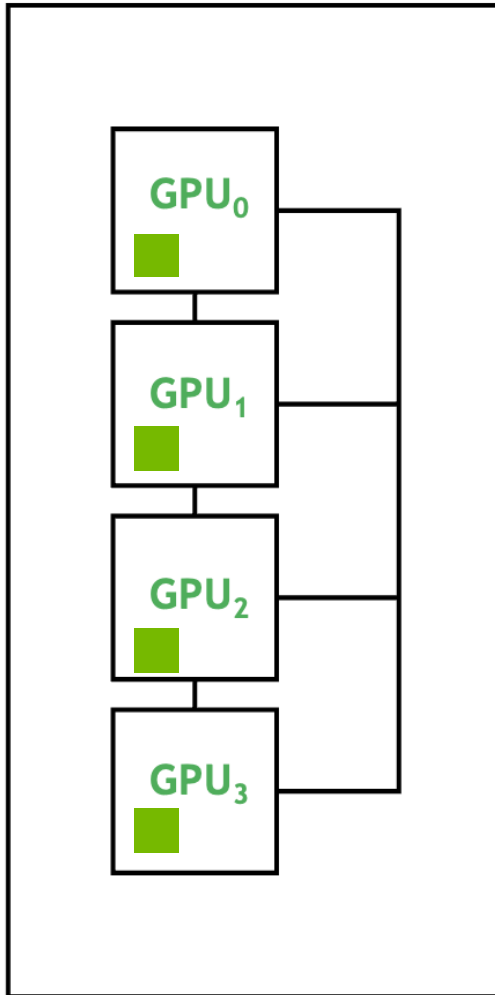




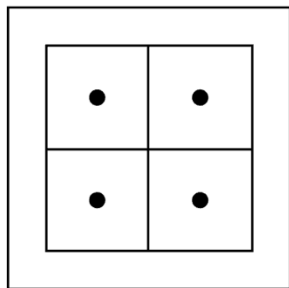
HOST



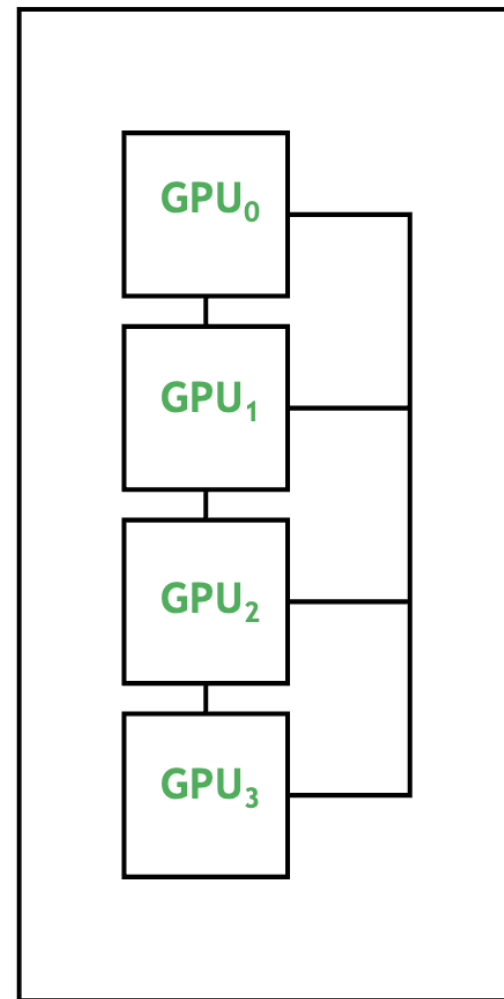
DEVICE



HOST

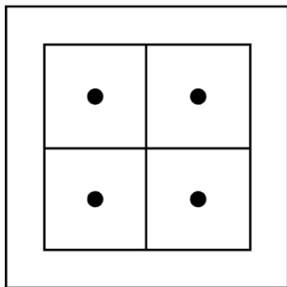


DEVICE

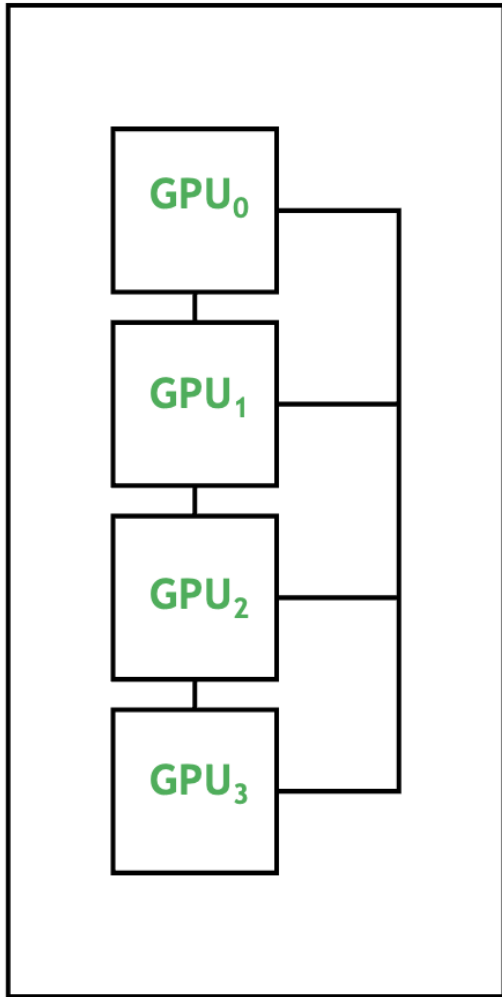




HOST



DEVICE



GPU  
DATA

0	4	8	12	16	20	24	28
1	5	9	13	17	21	25	29
2	6	10	14	18	22	26	30
3	7	11	15	19	23	27	31

GPU  
DATA

0	4	8	12	16	20	24	28
1	5	9	13	17	21	25	29
2	6	10	14	18	22	26	30
3	7	11	15	19	23	27	31

GPU  
DATA

0	4	8	12	16	20	24	28
1	5	9	13	17	21	25	29
2	6	10	14	18	22	26	30
3	7	11	15	19	23	27	31

GPU  
DATA

0	4	8	12	16	20	24	28
1	5	9	13	17	21	25	29
2	6	10	14	18	22	26	30
3	7	11	15	19	23	27	31

GPU  
DATA

0	4	8	12	16	20	24	28
1	5	9	13	17	21	25	29
2	6	10	14	18	22	26	30
3	7	11	15	19	23	27	31



**GPU**

# GPU

SM



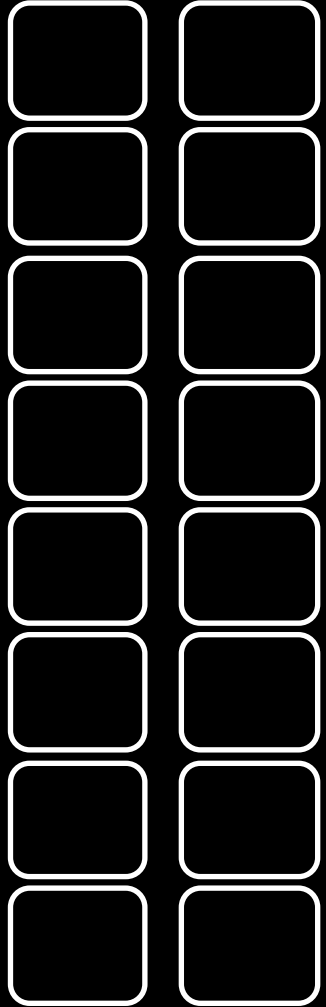
**GPU**



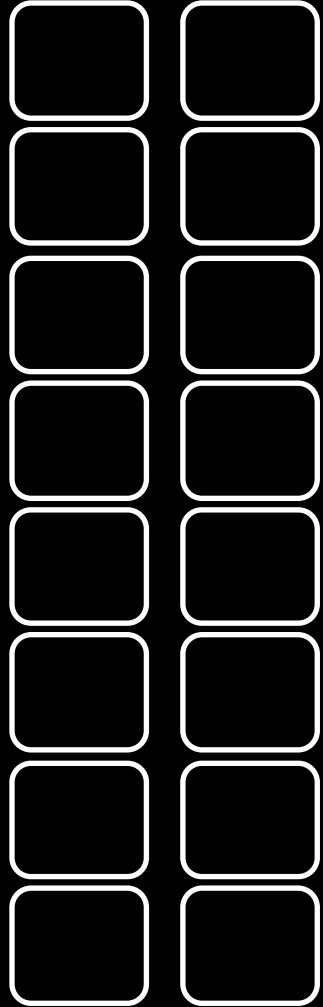
The diagram illustrates a GPU architecture. At the top, the label "GPU" is displayed in white. Below the label, there are two vertical columns of processing units. Each column contains eight identical units. Each unit is represented by a blue rounded rectangle with a white border, containing four vertical white bars. This visualizes a highly parallel architecture where many small units, each capable of multiple parallel operations, are used to process data simultaneously.



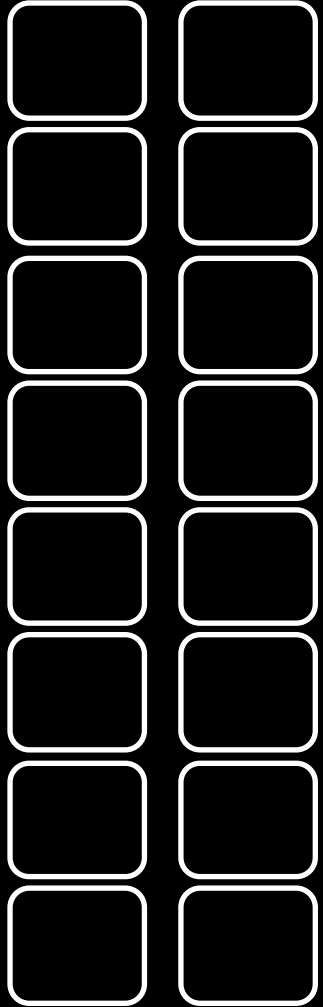
**GPU**



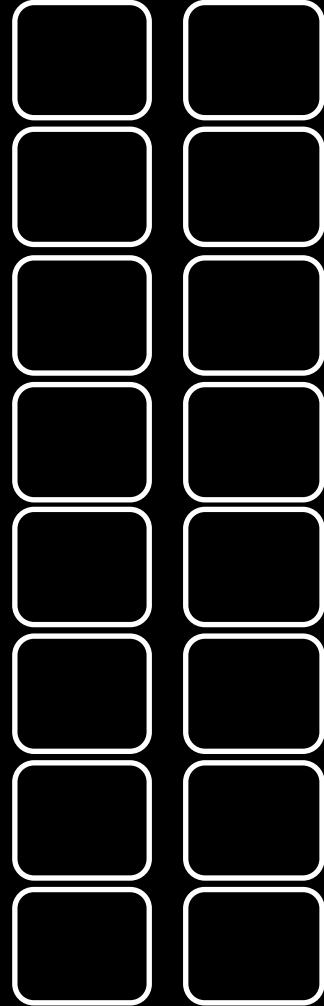
**GPU**



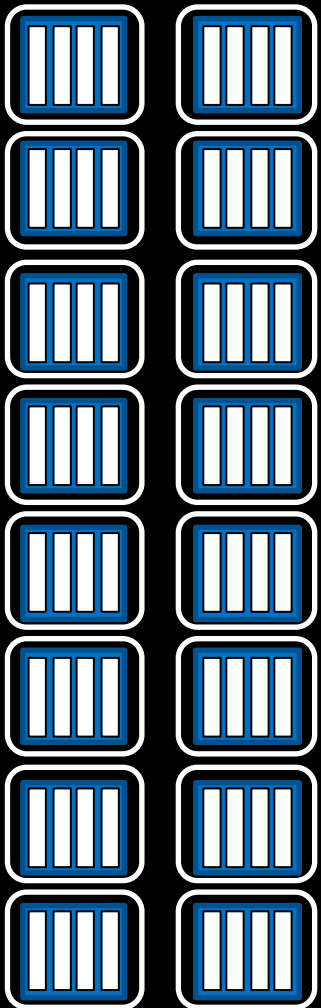
**GPU**



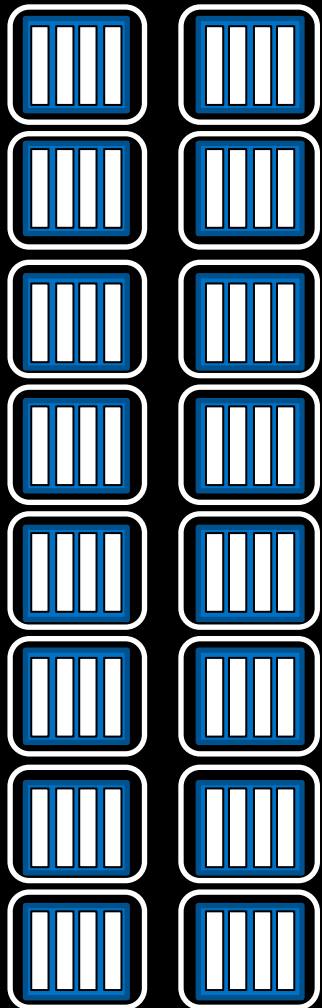
**GPU**



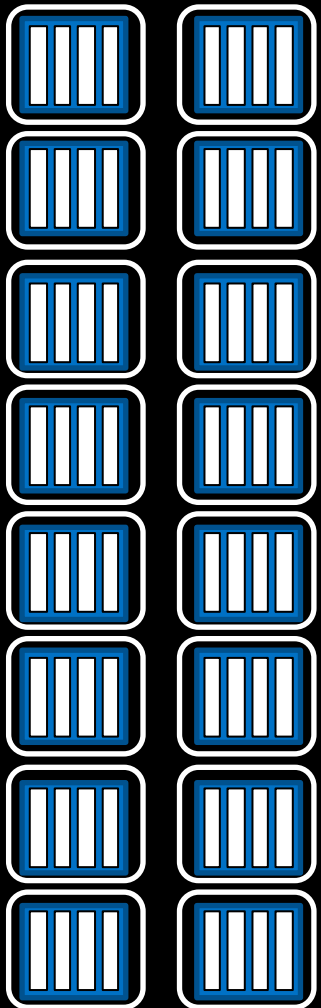
GPU



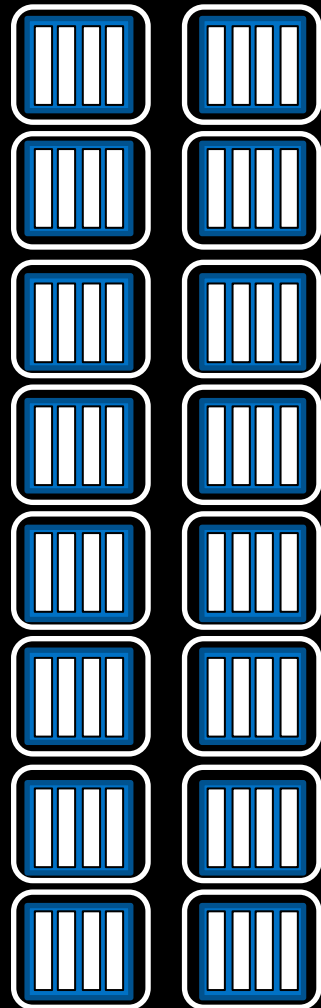
GPU

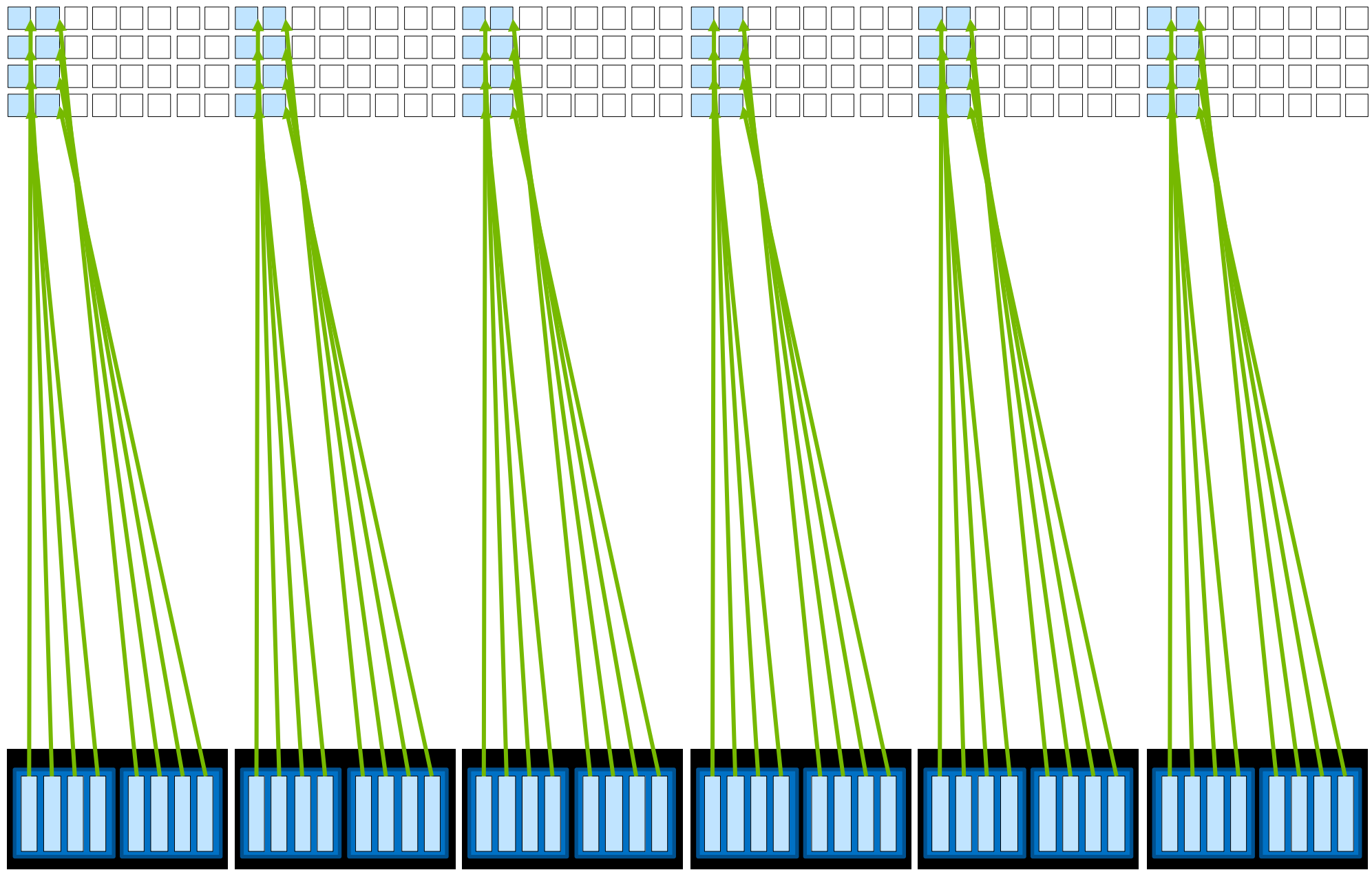


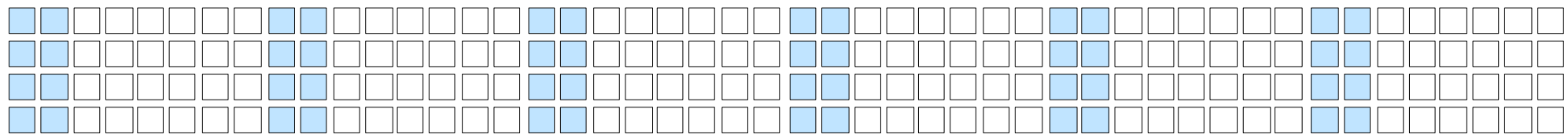
GPU



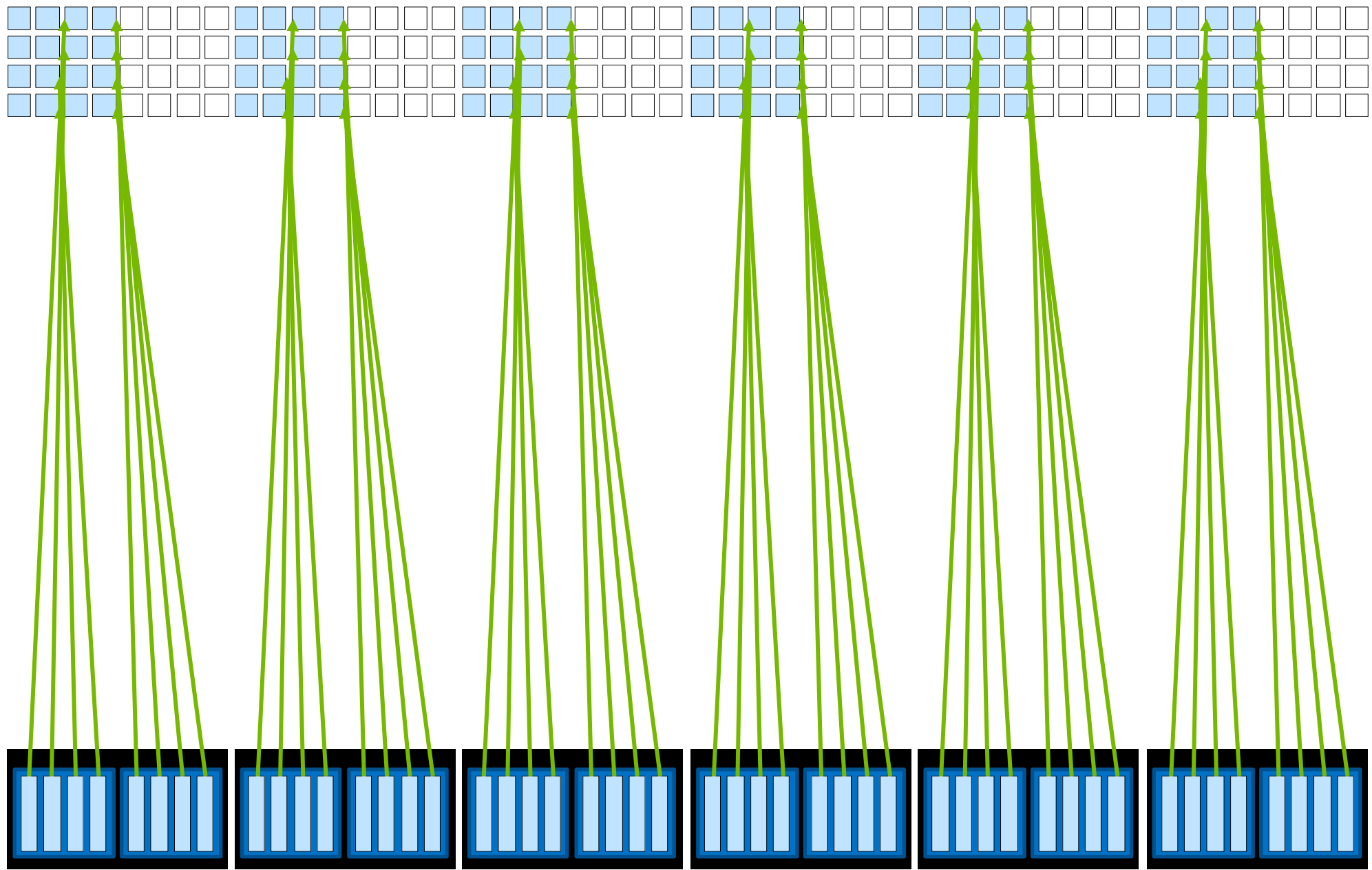
GPU

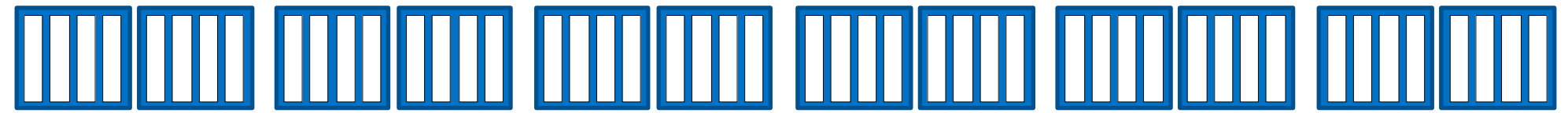
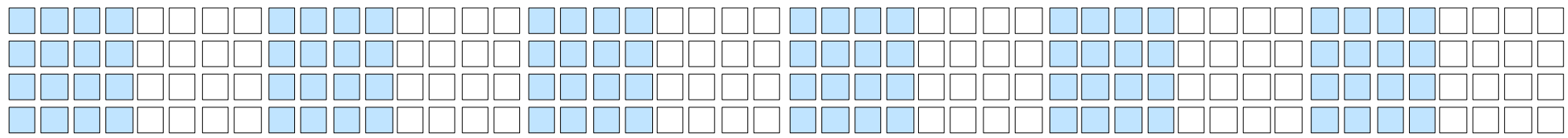


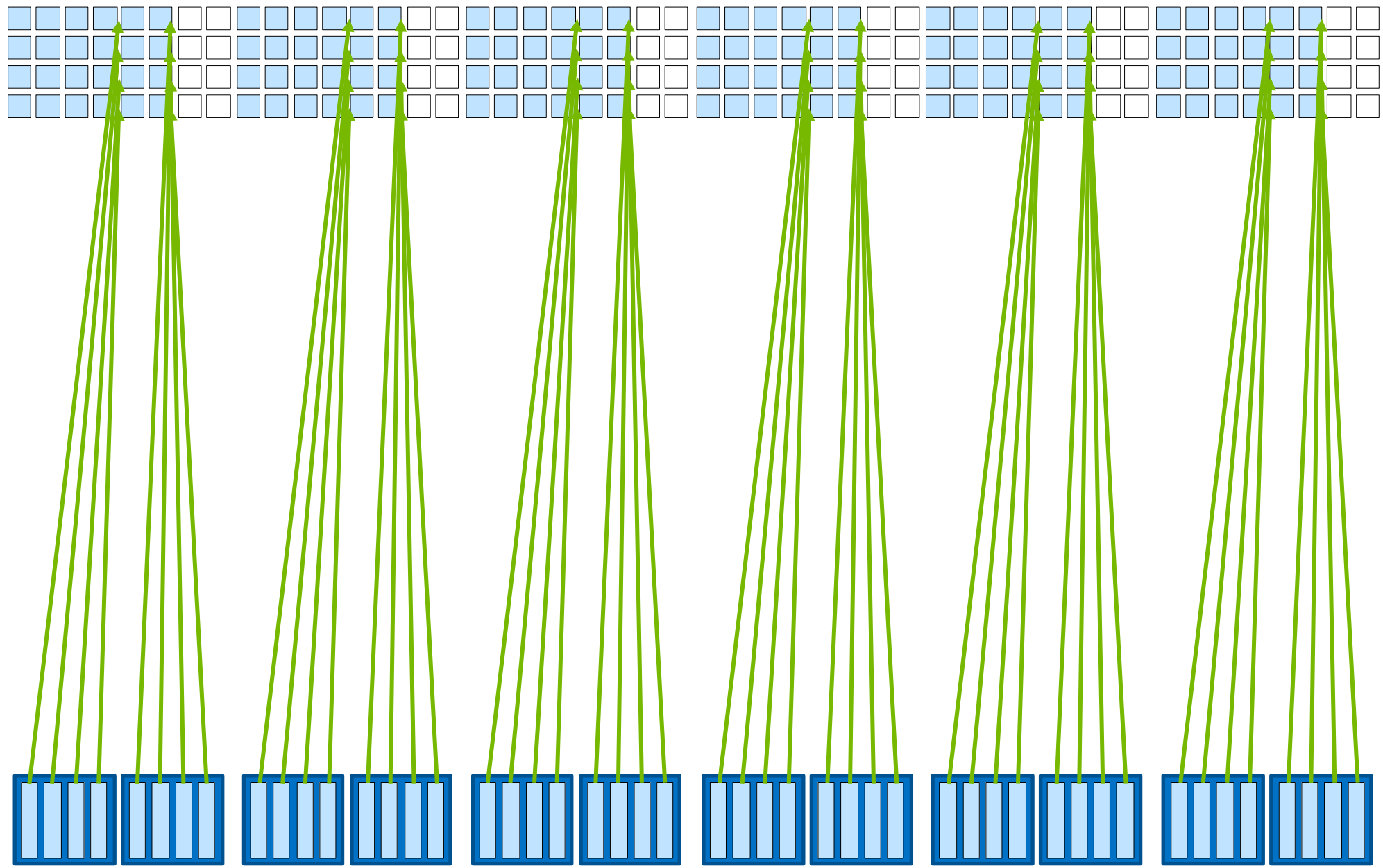


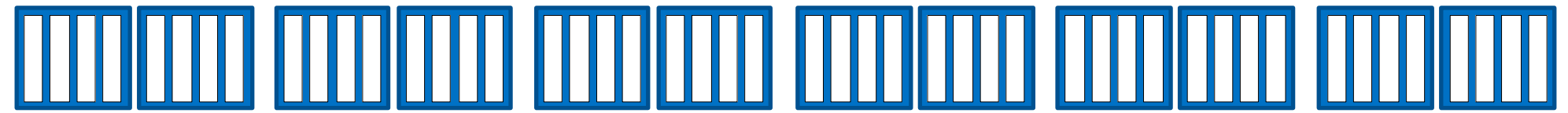
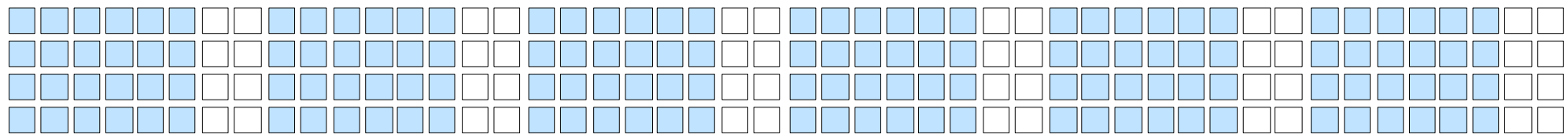


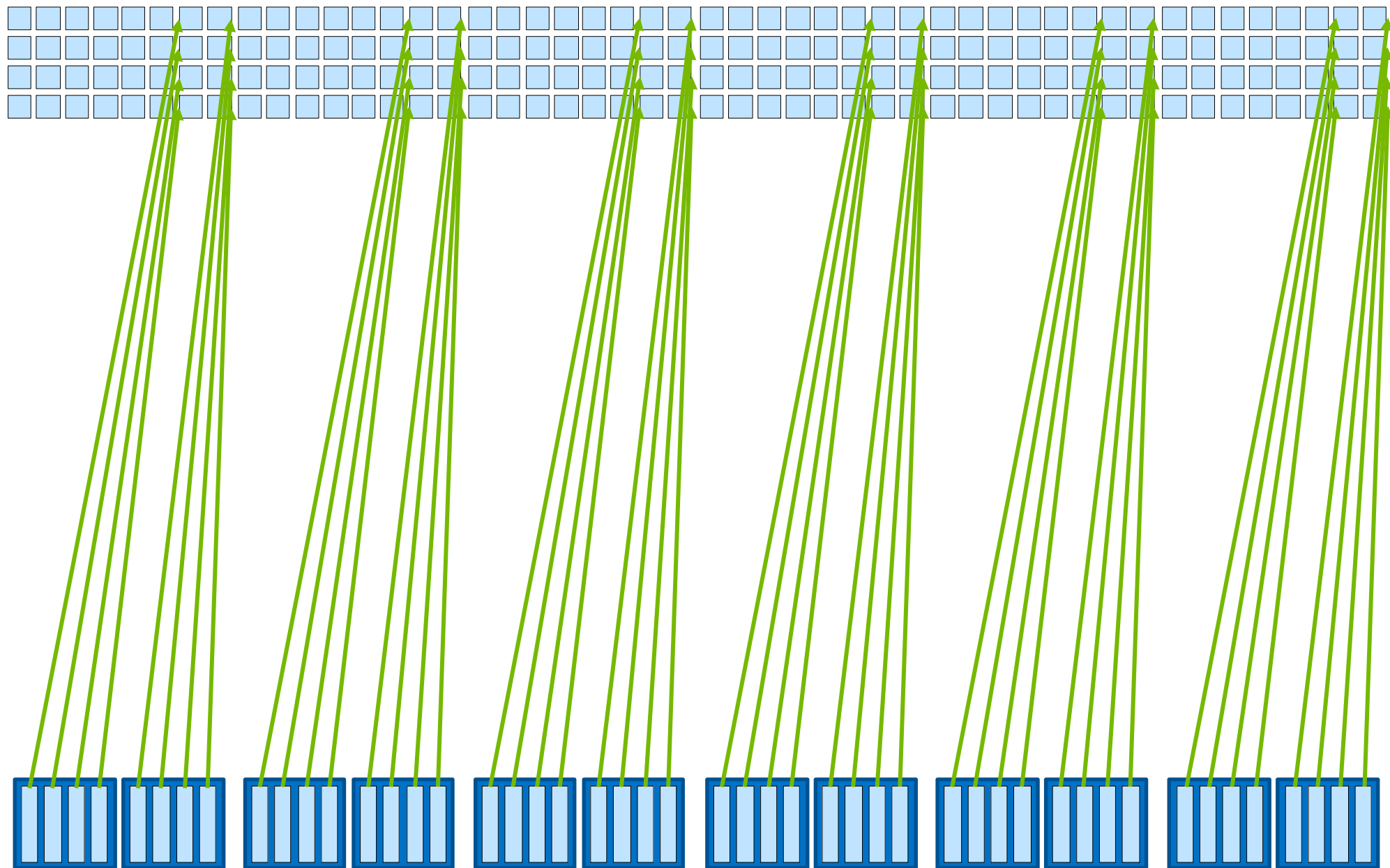


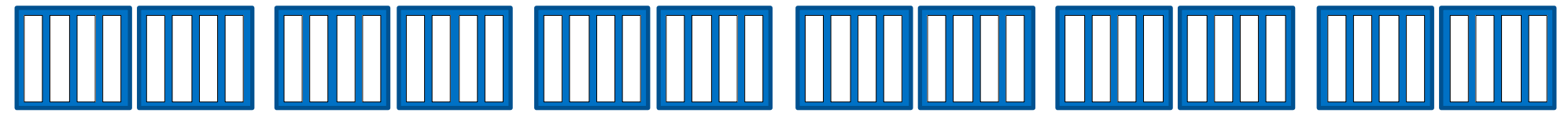
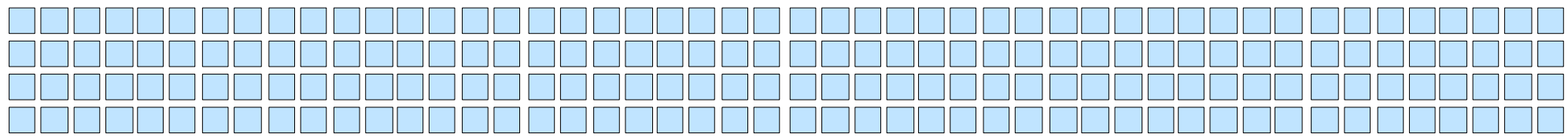




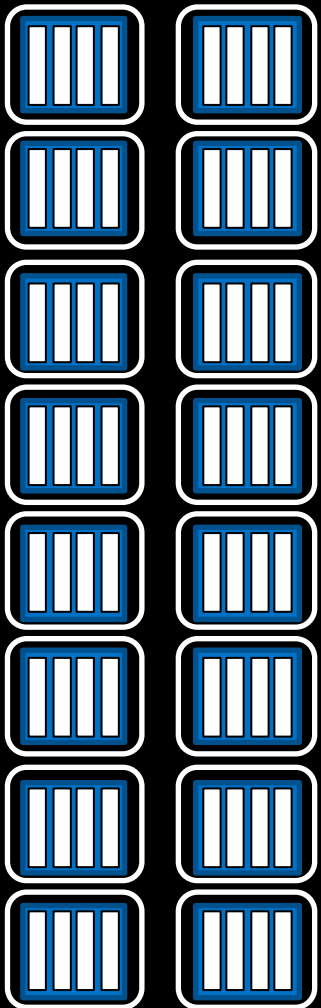




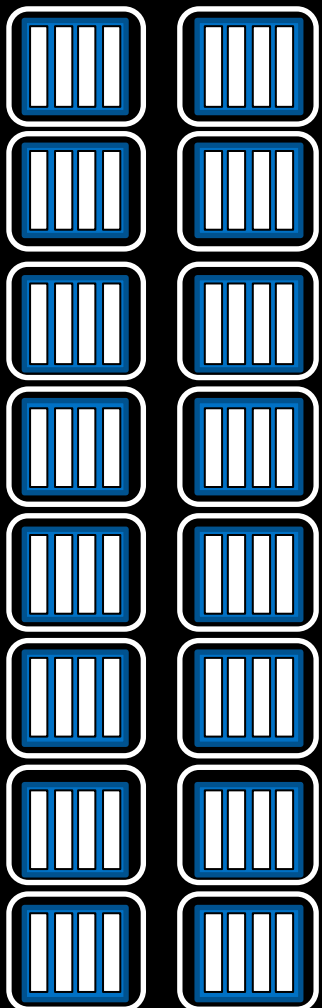




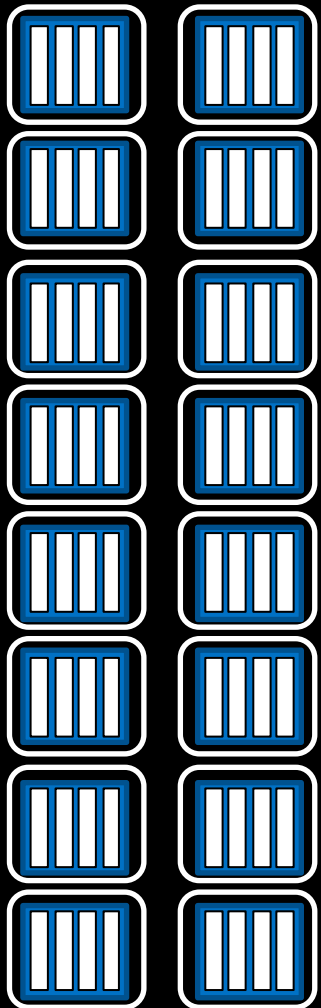
GPU



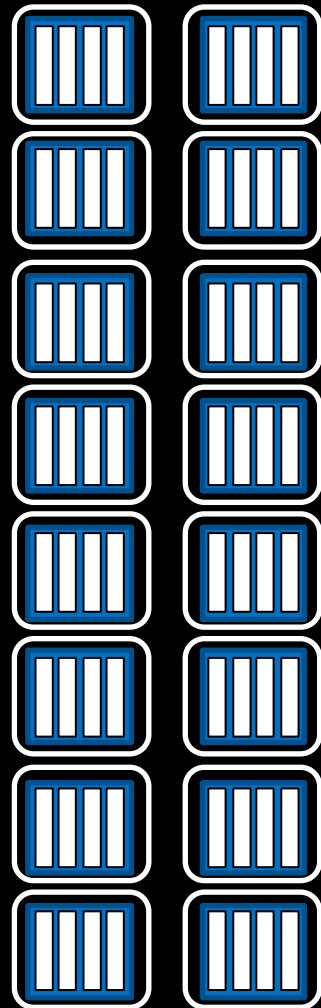
GPU



GPU



GPU



# SANTOS DUMONT

