



Device 1 (rank = 1)

```
 $x' = \text{split}(x)[\text{rank}]$   
 $z' = \text{matmul}(x', w)$   
 $z = \text{all\_gather}(z', \text{rank})$ 
```

Device 2 (rank = 2)

```
 $x' = \text{split}(x)[\text{rank}]$   
 $z' = \text{matmul}(x', w)$   
 $z = \text{all\_gather}(z', \text{rank})$ 
```