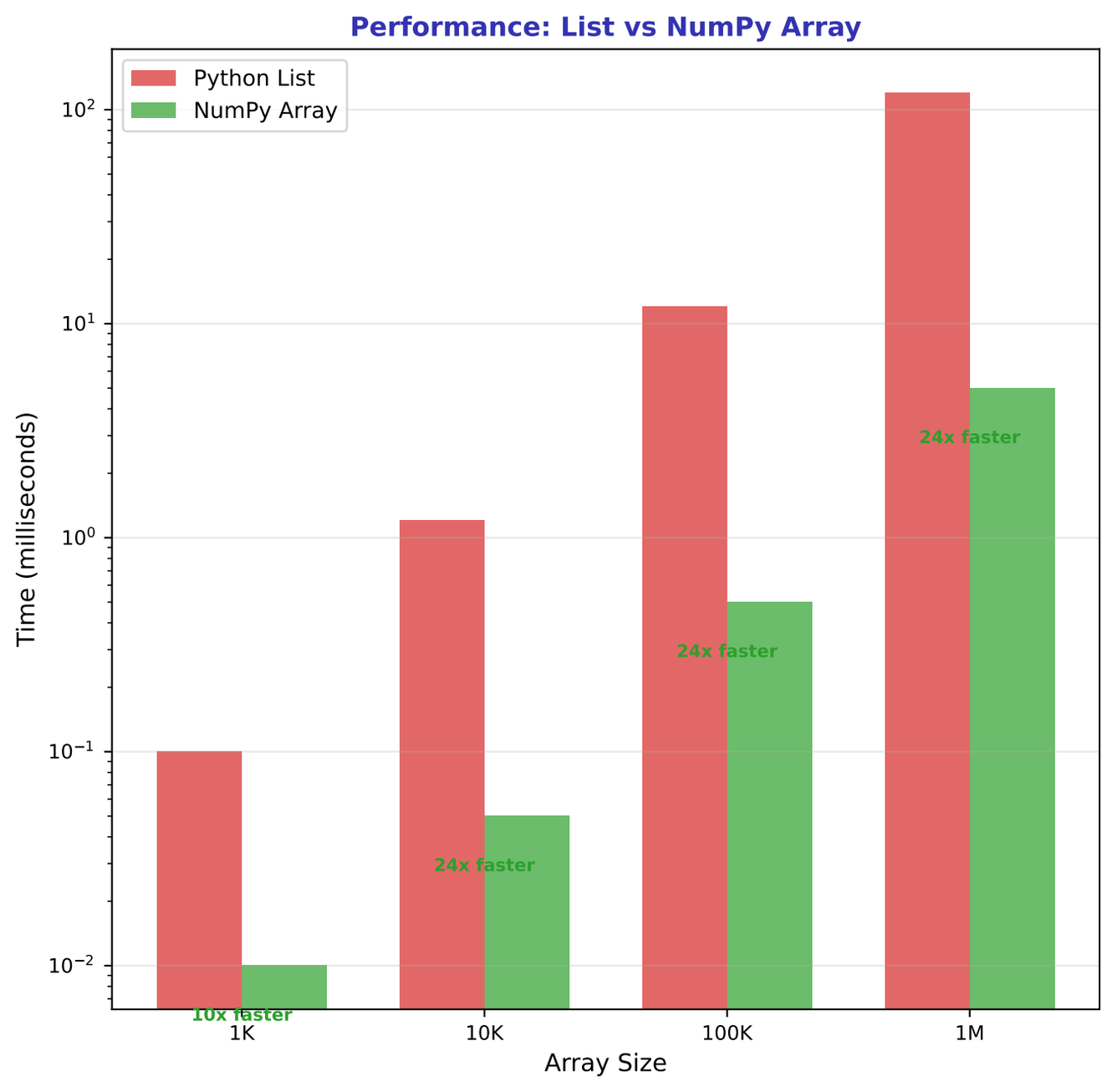

NumPy Array vs Python List

Feature	Python List	NumPy Array
Element Types	Mixed types	Single type (homogeneous)
Memory	Scattered	Contiguous block
Math Operations	Loop required	Vectorized (fast)
Broadcasting	Not supported	Supported
Size After Creation	Dynamic (mutable)	Fixed

Example: Element-wise multiplication

```
# List (slow):
[x*2 for x in my_list]
```

```
# NumPy (fast):
my_array * 2
```