Type Info

The numerical properties of a :class:`torch.dtype` can be accessed through either the :class:`torch.finfo` or the :class:`torch.iinfo`.

torch.finfo

A :class:`torch.finfo` is an object that represents the numerical properties of a floating point :class:`torch.dtype`, (i.e. `torch.float32`, `torch.float64`, `torch.float16`, and `torch.bfloat16`). This is similar to numpy.finfo.

A :class:`torch.finfo` provides the following attributes:

Name	Type	Description
bits	int	The number of bits occupied by the type.
eps	float	The smallest representable number such that `1.0 + eps != 1.0`.
max	float	The largest representable number.
min	float	The smallest representable number (typically `-max`).
tiny	float	The smallest positive normal number. See notes.
resolution	float	The approximate decimal resolution of this type, i.e., `10**-precision`.

Note

The constructor of :class:`torch.finfo` can be called without argument, in which case the class is created for the pytorch default dtype (as returned by :func:`torch.get_default_dtype`).

Note

tiny returns the smallest *normal* number, but there are smaller subnormal numbers. See
https://en.wikipedia.org/wiki/Denormal_number for more information.

torch.iinfo

A :class:`torch.iinfo` is an object that represents the numerical properties of a integer :class:`torch.dtype` (i.e. `torch.uint8`, `torch.int8`, `torch.int16`, `torch.int32`, and `torch.int64`). This is similar to numpy.iinfo.

A :class:`torch.iinfo` provides the following attributes:

Name	Type	Description
bits	int	The number of bits occupied by the type.
max	int	The largest representable number.
min	int	The smallest representable number.