NAME

ZF − NMRPipe Zero Fill

SYNOPSIS

nmrPipe −fn ZF [**−zf** *zfCnt* | **−pad** *padCnt* | **−size** *finalSize* | **−inv**] [**−mid**] [**−auto**]

DESCRIPTION

ZF extends the data size by appending zeros. It is used primarily on time−domain data to increase the digital resolution of the corresponding spectrum. In addition, doubling the original data size by zero filling is required if a Hilbert Transform (HT) will be used later to reconstruct imaginary data.

There are several ways to specify the amount of zero filling to perform. By default, **ZF** will double the size of the data.

OPTIONS

−zf *zfCount*
: Specifies the number of times to double the data size by zero filling. The default value is 1.

−pad *padCount*
: Specifies the number of zeros to add to the data, in complex points; it is an alternative to **−zf** and **−size**.

−size *finalSize*
: Specifies the desired complex size of the data after zero filling; it is an alternative to **−zf** and **−pad**.

−mid This flag will cause the zeros to be inserted into the middle of the data, rather than being appended to the end.

−auto This flag will round the final zero−fill size specified by the other options up to the nearest power of two. This will speed up Fourier transform steps which follow, but it may increase the data size to an inconveniently large value.

−inv This flag is used on inverse−processed time−domain data, to remove zeros which were appended in previous zero−fill steps. It reduces the data size to the valid time−domain size recorded in the header.

EXAMPLES

Double the data size by zero filling:

```
nmrPipe −fn ZF
nmrPipe −fn ZF −zf 1
```

Double the data size, and round up to a power of two:

```
nmrPipe −fn ZF −auto
nmrPipe −fn ZF −zf 1 −auto
```

Increase the data size by a factor of 4:

```
nmrPipe −fn ZF −zf 2
```

Zero fill to 1024 complex points:

```
nmrPipe −fn ZF −size 1024
```

Extend the data size by appending 1 complex point:

```
nmrPipe –fn ZF –pad 1
```

Remove any zero–fill performed previously:

```
nmrPipe –fn ZF –inv
```

HEADER VALUES

ZF updates the data size (NDSIZE) to reflect the new data size, points, and updates the zero fill size (NDZF) to reflect the amount of zero filling performed.

ZF also updates some chemical shift calibration information (NDCENTER and NDORIG) to accommodate the new position of the zero–frequency point which is anticipated for the corresponding spectrum.

In inverse mode (**–inv**), the data size is reduced to the recorded valid time–domain size (NDAPOD).

SEE ALSO

fdatap.h, **HT**(1), **FT**(1)

BUGS

Chemical shift calibration information may not be updated correctly for spectral regions which are extracted, inverse–processed, and re–processed with zero–filling.