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Short List Reading and Writing

The 'long list' form `WRITE(LUN) (A(J),J=1,N)` is translated into slow object code by some compilers. Normally, these compilers handle the 'short list' form

```
DIMENSION A(N)
WRITE(LUN) A
```

correctly, compiling just one system request, rather than `N` requests.

Furthermore, some machines require the calling program to know the record size beforehand, if reading is done in Fortran. The problem can be solved by adding the record size as the first word of the record, thus for

writing: `WRITE(LUN) N,(B(J),J=1,N)`
reading: `READ (LUN) N,(B(J),J=1,N)`

This way of reading and writing is an extra convention; it is called 'variable length' in the descriptions below.

Sometimes it is convenient to prefix each record with some identifiers, always the same number of words, say `NA` words:

writing: `WRITE(LUN) N,(A(J),J=1,NA),(B(J),J=1,N)`
reading: `READ (LUN) N,(A(J),J=1,NA),(B(J),J=1,N)`

This mode is called 'split mode' in the descriptions below.

The routines of `XINOUT` provide 'short list' reading and writing for split mode, variable length mode and also for fixed length mode.

Structure:

`SUBROUTINE` subprograms
User Entry Names: `XINB`, `XINBF`, `XINBS`, `XOUTB`, `XOUTBF`, `XOUTBS`
`COMMON` Block Names and Lengths: `/SLATE/ NR,DUMMY(39)`
Files Referenced: Parameter

Notes:

The routines `XINCF` and `XOUTCF` to handle formatted files are obsolete.

Usage:

Reading:

The vectors to be read are XAV and XV of length NA and NX; the read routines contain effectively

```
DIMENSION XV(NX) [,XAV(NA)]
```

Before calling, NX must be preset to the maximum number of words to be accepted into XV with, say, NX = NWMAX.

`CALL XINB(LUN,XV,NX)`	Read binary, variable length: `READ(LUN) NR,(XV(J),J=1,MIN(NR,NX))`
`CALL XINBF(LUN,XV,NX)`	Read binary, fixed length: `READ(LUN) XV`
`CALL XINBS(LUN,XAV,NA,XV,NX)`	Read binary, split mode: `READ(LUN) NR,XAV,(XV(J),J=1,MIN(NR,NX))`

On return NX contains:

NX > 0 : Read successful, number of words transmitted into XV.
$= 0$: End-of-file.
< 0 : Read error, its value contains the IOSTAT error code on most machines.

For XINB and XINBS the record length NR read from the file is stored into the first word of /SLATE/.

Writing:

The vectors to be written are AV and V of length NA and N; the write routines contain

```
DIMENSION V(N) [,AV(NA)]
```

`CALL XOUTB(LUN,V,N)`	Write binary, variable length: `WRITE(LUN) N,V`
`CALL XOUTBF(LUN,V,N)`	Write binary, fixed length: `WRITE(LUN) V`
`CALL XOUTBS(LUN,AV,NA,V,N)`	Write binary, split mode: `WRITE(LUN) N,AV,V`

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