

NAG Toolbox

nag_blast_dsum (f16el)

1 Purpose

nag_blast_dsum (f16el) sums the elements of a real vector.

2 Syntax

```
[result] = nag_blast_dsum(n, x, incx)
[result] = f16el(n, x, incx)
```

3 Description

nag_blast_dsum (f16el) returns the sum

$$x_1 + x_2 + \cdots + x_n$$

of the elements of an n -element real vector x , via the function name.

If $n \leq 0$ on entry, nag_blast_dsum (f16el) returns the value 0.

4 References

Basic Linear Algebra Subprograms Technical (BLAST) Forum (2001) *Basic Linear Algebra Subprograms Technical (BLAST) Forum Standard* University of Tennessee, Knoxville, Tennessee <http://www.netlib.org/blas/blast-forum/blas-report.pdf>

5 Parameters

5.1 Compulsory Input Parameters

- 1: **n** – INTEGER
 n , the number of elements in x .
- 2: **x(1 + (n - 1) × |incx|)** – REAL (KIND=nag_wp) array
The vector x . Element x_i is stored in **x**(($i - 1$) × |**incx**| + 1), for $i = 1, 2, \dots, n$.
- 3: **incx** – INTEGER
The increment in the subscripts of **x** between successive elements of x .
Constraint: **incx** ≠ 0.

5.2 Optional Input Parameters

None.

5.3 Output Parameters

- 1: **result**
The result of the function.

6 Error Indicators and Warnings

If `incx = 0`, an error message is printed and program execution is terminated.

7 Accuracy

The BLAS standard requires accurate implementations which avoid unnecessary over/underflow (see Section 2.7 of Basic Linear Algebra Subprograms Technical (BLAST) Forum (2001)).

8 Further Comments

None.

9 Example

This example computes the sum of the elements of

$$x = (1.1, 10.2, 11.5, -2.7, 9.2)^T.$$

9.1 Program Text

```
function f16el_example

fprintf('f16el example results\n\n');

% sum x
n = nag_int(5);
x = [1.1 10.2 11.5 -2.7 9.2];
incx = nag_int(1);

[xsum] = f16el(n, x, incx);

fprintf('sum(');
fprintf('%7.1f', x);
fprintf(') = %7.1f\n', xsum);
```

9.2 Program Results

```
f16el example results

sum( 1.1 10.2 11.5 -2.7 9.2) = 29.3
```
