

## NAG Library Chapter Contents

### f16 – NAG Interface to BLAS

f16 Chapter Introduction – a description of the Chapter and an overview of the algorithms available

Function Name	Mark of Introduction	Purpose
f16dbc	7	nag_ildload Broadcast scalar into integer vector
f16dlc	9	nag_isum Sum elements of integer vector
f16dnc	9	nag_imax_val Maximum value and location, integer vector
f16dpc	9	nag_imin_val Minimum value and location, integer vector
f16dqc	9	nag_iamax_val Maximum absolute value and location, integer vector
f16drc	9	nag_iamin_val Minimum absolute value and location, integer vector
f16eac	24	nag_ddot Dot product of two vectors, allows scaling and accumulation.
f16ecc	7	nag_daxpby Real weighted vector addition
f16ehc	9	nag_dwaxpby Real weighted vector addition preserving input
f16elc	9	nag_dsum Sum elements of real vector
f16fbc	7	nag_dload Broadcast scalar into real vector
f16gcc	24	nag_zaxpby Complex weighted vector addition
f16ghc	9	nag_zwaxpby Complex weighted vector addition preserving input
f16glc	9	nag_zsum Sum elements of complex vector
f16hbc	7	nag_zload Broadcast scalar into complex vector
f16jnc	9	nag_dmax_val Maximum value and location, real vector
f16jpc	9	nag_dmin_val Minimum value and location, real vector
f16jqc	9	nag_damax_val Maximum absolute value and location, real vector
f16jrc	9	nag_damin_val Minimum absolute value and location, real vector
f16jsc	9	nag_zamax_val Maximum absolute value and location, complex vector
f16jtc	9	nag_zamin_val Minimum absolute value and location, complex vector
f16pac	8	nag_dgemv Matrix-vector product, real rectangular matrix
f16pbc	8	nag_dgbmv Matrix-vector product, real rectangular band matrix
f16pcc	8	nag_dsymv Matrix-vector product, real symmetric matrix

f16pdc	8	nag_dsblmv Matrix-vector product, real symmetric band matrix
f16pec	8	nag_dspmv Matrix-vector product, real symmetric packed matrix
f16pfc	8	nag_dtrmv Matrix-vector product, real triangular matrix
f16pgc	8	nag_dtbmv Matrix-vector product, real triangular band matrix
f16phc	8	nag_dtpmv Matrix-vector product, real triangular packed matrix
f16pje	7	nag_dtrsv System of equations, real triangular matrix
f16pkc	8	nag_dtbsv System of equations, real triangular band matrix
f16plc	8	nag_dtpsv System of equations, real triangular packed matrix
f16pmc	8	nag_dger Rank-1 update, real rectangular matrix
f16ppc	8	nag_dsyr Rank-1 update, real symmetric matrix
f16pqc	8	nag_dspr Rank-1 update, real symmetric packed matrix
f16prc	8	nag_dsyr2 Rank-2 update, real symmetric matrix
f16psc	8	nag_dspr2 Rank-2 update, real symmetric packed matrix
f16qec	7	nag_dtr_copy Matrix copy, real triangular matrix
f16qfc	7	nag_dge_copy Matrix copy, real rectangular matrix
f16qgc	7	nag_dtr_load Matrix initialization, real triangular matrix
f16qhc	7	nag_dge_load Matrix initialization, real rectangular matrix
f16rac	7	nag_dge_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real general matrix
f16rbc	7	nag_dgb_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real band matrix
f16rcc	7	nag_dsy_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real symmetric matrix
f16rdc	7	nag_dsp_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real symmetric matrix, packed storage
f16rec	7	nag_dsb_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real symmetric band matrix
f16rk	25	nag_dsf_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, real symmetric matrix, Rectangular Full Packed format
f16sac	8	nag_zgemv Matrix-vector product, complex rectangular matrix
f16sbc	8	nag_zgbmv Matrix-vector product, complex rectangular band matrix
f16scc	8	nag_zhemv Matrix-vector product, complex Hermitian matrix

f16sdc	8	nag_zhbmvm
		Matrix-vector product, complex Hermitian band matrix
f16sec	8	nag_zhpmvm
		Matrix-vector product, complex Hermitian packed matrix
f16sfc	8	nag_ztrmv
		Matrix-vector product, complex triangular matrix
f16sgc	8	nag_ztbmv
		Matrix-vector product, complex triangular band matrix
f16shc	8	nag_ztpmv
		Matrix-vector product, complex triangular packed matrix
f16sjc	7	nag_ztrsv
		System of equations, complex triangular matrix
f16skc	8	nag_ztbsv
		System of equations, complex triangular band matrix
f16slc	8	nag_ztpsv
		System of equations, complex triangular packed matrix
f16smc	8	nag_zger
		Rank-1 update, complex rectangular matrix, unconjugated vector
f16spc	8	nag_zher
		Rank-1 update, complex Hermitian matrix
f16sqc	8	nag_zhpr
		Rank-1 update, complex Hermitian packed matrix
f16src	8	nag_zher2
		Rank-2 update, complex Hermitian matrix
f16ssc	8	nag_zhpr2
		Rank-2 update, complex Hermitian packed matrix
f16tac	8	nag_zsymv
		Matrix-vector product, complex symmetric matrix
f16tcc	8	nag_zspmv
		Matrix-vector product, complex symmetric packed matrix
f16tec	7	nag_ztr_copy
		Matrix copy, complex triangular matrix
f16tfc	7	nag_zge_copy
		Matrix copy, complex rectangular matrix
f16tgc	7	nag_ztr_load
		Matrix initialization, complex triangular matrix
f16thc	7	nag_zge_load
		Matrix initialization, complex rectangular matrix
f16uac	7	nag_zge_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex general matrix
f16ubc	7	nag_zgb_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex band matrix
f16ucc	7	nag_zhe_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex Hermitian matrix
f16udc	7	nag_zhp_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex Hermitian matrix, packed storage
f16uec	7	nag_zhb_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex Hermitian band matrix
f16ufc	7	nag_zsy_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex symmetric matrix
f16ugc	7	nag_zsp_norm
		1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex symmetric matrix, packed storage

f16ukc	25	nag_zhf_norm 1-norm, $\infty$ -norm, Frobenius norm, largest absolute element, complex Hermitian matrix, Rectangular Full Packed format
f16yac	8	nag_dgemm Matrix-matrix product, two real rectangular matrices
f16ycc	8	nag_dsymm Matrix-matrix product, one real symmetric matrix, one real rectangular matrix
f16yfc	8	nag_dtrmm Matrix-matrix product, one real triangular matrix, one real rectangular matrix
f16yjc	7	nag_dtrsm Solves a system of equations with multiple right-hand sides, real triangular coefficient matrix
f16ylc	25	nag_dtfsn Solves a system of equations with multiple right-hand sides, real triangular coefficient matrix, Rectangular Full Packed format
f16ypc	8	nag_dsyrk Rank- $k$ update of a real symmetric matrix
f16yqc	25	nag_dsfrk Rank- $k$ update of a real symmetric matrix, Rectangular Full Packed format
f16yrc	8	nag_dsyr2k Rank- $2k$ update of a real symmetric matrix
f16zac	8	nag_zgemm Matrix-matrix product, two complex rectangular matrices
f16zcc	8	nag_zhemm Matrix-matrix product, one complex Hermitian matrix, one complex rectangular matrix
f16zfc	8	nag_ztrmm Matrix-matrix product, one complex triangular matrix, one complex rectangular matrix
f16zjc	7	nag_ztrsm Solves system of equations with multiple right-hand sides, complex triangular coefficient matrix
f16zlc	25	nag_ztfsn Solves system of equations with multiple right-hand sides, complex triangular coefficient matrix, Rectangular Full Packed format
f16zpc	8	nag_zherk Rank- $k$ update of a complex Hermitian matrix
f16zqc	25	nag_zhfrk Rank- $k$ update of a complex Hermitian matrix, Rectangular Full Packed format
f16zrc	8	nag_zher2k Rank- $2k$ update of a complex Hermitian matrix
f16ztc	8	nag_zsymm Matrix-matrix product, one complex symmetric matrix, one complex rectangular matrix
f16zuc	8	nag_zsyrk Rank- $k$ update of a complex symmetric matrix
f16zwc	8	nag_zsyr2k Rank- $2k$ update of a complex symmetric matrix

---