

The routines are defined for each data type, e.g., in the `double` case

$\mathbf{x}^T \mathbf{y}$ : `psb_d_t psb_c_dgedot(psb_c_dvector **x, psb_c_dvector *y, psb_c_descriptor *desc_a);`

$\mathbf{y} \leftarrow \alpha \mathbf{x} + \beta \mathbf{y}$ : `psb_i_t psb_c_dgeaxpby(psb_d_t alpha, psb_c_dvector *x, psb_d_t beta, psb_c_dvector *y, psb_c_descriptor *desc_a);`

$\max_i |x_i|$ : `psb_d_t psb_c_dgeamax(psb_c_dvector **x, psb_c_descriptor *desc_a);`

$\sum_i |x_i|$ : `psb_d_t psb_c_dgeasum(psb_c_dvector **x, psb_c_descriptor *desc_a);`

$\|\mathbf{x}\|_2$ : `psb_d_t psb_c_dgenrm2(psb_c_dvector **x, psb_c_descriptor *desc_a);`

$\|\mathbf{A}\|_\infty$ : `psb_d_t psb_c_dspnrm1(psb_c_dspmat *A, psb_c_descriptor *desc_a);`

$\mathbf{y} \leftarrow \alpha \mathbf{A}^T \mathbf{x} + \beta \mathbf{y}$ : `psb_i_t psb_c_dspmm_opt(psb_d_t alpha, psb_c_dspmat *A, psb_c_dvector **x, psb_d_t beta, psb_c_dvector *y, psb_c_descriptor *desc_a, char *trans, bool doswap);`

**Note:** The headers for these functions are in the file `psb_c_dbase.h`, `psb_c_cbase.h`, `psb_c_sbase.h`, `psb_c_zbase.h`, they can be included all together by including `psb_base_cbind.h`.