Template CG	PSBLAS Implementation
Compute $r^{(0)} = b - Ax^{(0)}$	`call psb_geaxpby(one,b,zero,r,desc_a,info)`
	`rho = zero`
for $i = 1, 2, \ldots$	`iterate: do it = 1, itmax`
$\quad$ solve $Mz^{(i-1)} = r^{(i-1)}$	`    call psb_spsm(one,L,r,zero,w,desc_a,info)`
	`    call psb_spsm(one,U,w,zero,z,desc_a,info)`
$\quad \rho_{i-1} = r^{(i-1)^T} z^{(i-1)}$	`    rho_old = rho`
	`    rho = psb_gedot(r,z,desc_a,info)`
$\quad$ **if** $i = 1$	`    if (it == 1) then`
$\qquad p^{(1)} = z^{(0)}$	`        call psb_geaxpby(one,z,zero,p,desc_a,info)`
$\quad$ **else**	`    else`
$\qquad \beta_{i-1} = \rho_{i-1}/\rho_{i-2}$	`        beta = rho/rho_old`
$\qquad p^{(i)} = z^{(i-1)} + \beta_{i-1}p^{(i-1)}$	`        call psb_geaxpby(one,z,beta,p,desc_a,info)`
$\quad$ **endif**	`    endif`
$\quad q^{(i)} = Ap^{(i)}$	`    call psb_spmm(one,A,p,zero,q,desc_a,info)`
$\quad \alpha_i = \rho_{i-1}/p^{(i)^T} q^{(i)}$	`    sigma = psb_gedot(p,q,desc_a,info)`
	`    alpha = rho/sigma`
$\quad x^{(i)} = x^{(i-1)} + \alpha_i p^{(i)}$	`    call psb_geaxpby(alpha,p,one,x,desc_a,info)`
$\quad r^{(i)} = r^{(i-1)} - \alpha_i q^{(i)}$	`    call psb_geaxpby(-alpha,q,one,r,desc_a,info)`
$\quad$ Check convergence:	
$\quad \|r^{(i)}\|_2 \le \epsilon \|b\|_2$	`    rn2 = psb_genrm2(r,desc_a,info)`
	`    bn2 = psb_genrm2(b,desc_a,info)`
	`    err = rn2/bn2`
	`    if (err.lt.eps) exit iterate`
end	`enddo iterate`

Exercise: write the corresponding C version for **double** vectors and matrices