Subscripts are used to indicate the type of arguments as follows: $logical_L$, $integer_i$, $real_r$, double $precision_d$, $complex_z$, character_c, and subroutine or unknown external_x. The text of arguments indicates how it is used: **defined** (value may also be referenced), referenced (no value assigned), possibly defined or referenced uses the normal font, $logical_L$ and external name. Arrays are given in upper case. The decorations for the arguments were obtained automatically using the software described in Chapter 19.7, while the text for the arguments was obtained using a program that examines the LATeX files.

```
CHAPTER CALL Statement
```

```
CALL CAXPY
                               (n_i, ca_z, CX_z, incx_i, \mathbf{CY}_z, incy_i)
 6.3
       CALL CCOEF
                               (ndeg_i, ROOTS_z, \mathbf{COEFS}_z)
       CALL CCOPY
                               (n_i, CX_z, incx_i, CY_z, incy_i)
 6.3
       Z =
                 CDOTC
                               (n_i, CX_z, incx_i, CY_z, incy_i)
 6.3
 6.3
       Z =
                 CDOTU
                               (n_i, CX_z, incx_i, CY_z, incy_i)
       CALL CGAM
                               (CARG_r, \mathbf{CVAL}_r, \mathbf{errest}_r, mode_i)
       CALL CGECO
                               (\mathbf{A}_z, lda_i, n_i, \mathbf{IPVT}_i, \mathbf{rcond}_r, \mathbf{Z}_z)
 4.1
       CALL CGED
                               (A_z, lda_i, n_i, IPVT_i, \mathbf{DET}_z)
 4.1
       CALL CGEFA
                               (\mathbf{A}_z, lda_i, n_i, \mathbf{IPVT}_i, \mathbf{info}_i)
 4.1
       CALL CGEFS
                               (\mathbf{A}_z, lda_i, n_i, \mathbf{B}_z, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{info}_i)
       CALL CGEFSC
                               (\mathbf{A}_z, lda_i, n_i, \mathbf{B}_z, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{rcond}_r, \mathbf{Z}_z)
 4.1
       CALL CGEI
                               (\mathbf{A}_z, lda_i, n_i, IPVT_i, \mathbf{WORK}_z)
 4.1
       CALL CGESLD
                               (A_z, lda_i, n_i, IPVT_i, \mathbf{C}_z)
       CALL CGESLT
                               (A_z, lda_i, n_i, IPVT_i, \mathbf{C}_z)
 4.1
       CALL CPOLZ
                               (A_z, ndeg_i, \mathbf{Z}_z, \mathbf{H}_r, \mathbf{ierr}_i)
 7.1
       CALL CSCAL
                               (n_i, ca_z, \mathbf{CX}_z, incx_i)
 6.3
       CALL CSORT
                                (\mathbf{C}_c, m_i, n_i, k_i, l_i, \mathbf{ctemp}_c)
18.1
18.1
       CALL CSORTP
                               (C_c, m_i, n_i, k_i, l_i, \mathbf{IP}_i)
       CALL CSORTQ
                               (C_c, m_i, n_i, k_i, l_i, \mathbf{IP}_i)
18.1
       CALL CSSCAL
                               (n_i, sa_r, \mathbf{CX}_z, incx_i)
 6.3
       CALL CSWAP
                               (n_i, \mathbf{CX}_z, incx_i, \mathbf{CY}_z, incy_i)
       CALL CWOFZ
                               (Z_r, \mathbf{W}_r, \mathbf{iflag}_i)
2.16
19.1
       D =
                 D1MACH (j_i)
       CALL DACCUM (\mathbf{A}_d, lda_i, n_i, \mathbf{B}_d, ldb_i, nb_i, \mathbf{ir1}_i, nrows_i, \mathbf{ncount}_i)
 4.4
                 DACOSH (x_d)
 2.1
       D =
       D =
                 DACSCH
 2.1
                               (x_d)
 2.1
       D =
                 DACTNH
                               (x_d)
 2.1
       D =
                 DASECH
                               (x_d)
       D =
                 DASINH
 2.1
                               (x_d)
                 DASUM
 6.3
       D =
                               (n_i, DX_d, incx_i)
 2.1
       D =
                 DATANH
                               (x_d)
                 DAXPY
                               (n_i, da_d, DX_d, incx_i, \mathbf{DY}_d, incy_i)
 6.3
       CALL
       CALL
                 DBACC
                               (\mathbf{G}_d, ldg_i, nb_i, \mathbf{ir}_i, mt_i, jt_i, \mathbf{jtprev}_i, \mathbf{ierr2}_i)
 4.5
                 DBESJ0
 2.4
       D =
                               (x_d)
 2.4
       D =
                 DBESJ1
                               (x_d)
       CALL DBESJN
 2.5
                               (x_d, alpha_d, num_i, \mathbf{BJ}_d)
 2.4
       D =
                 DBESY0
                               (x_d)
 2.4
       D =
                 DBESY1
                               (x_d)
       CALL DBESYN
 2.5
                               (x_d, alpha_d, num_i, \mathbf{BY}_d)
       CALL DBI0K0
                               (x_d, \mathbf{bi0}_d, \mathbf{bk0}_d, iwant_i, \mathbf{info}_i)
                 DBI1K1
 2.6
       CALL
                               (x_d, \mathbf{bi1}_d, \mathbf{bk1}_d, iwant_i, \mathbf{info}_i)
2.20
       D =
                 DBINOM
       CALL DBSOL
                               (mode_i, G_d, ldg_i, nb_i, ir_i, jtprev_i, \mathbf{X}_d, n_i, \mathbf{rnorm}_d, \mathbf{ierr3}_i)
 4.5
       CALL DC2FIT
                               (X_d, Y_d, SD_d, nxy_i, B_d, nb_i, \mathbf{W}_d, ldw_i, \mathbf{YKNOT}_d, \mathbf{YPKNOT}_d, \mathbf{sigfac}_d,
11.4
                               ierr1_i
15.3 CALL DCDCHI (chisq_d, nu_d, \mathbf{p}_d, \mathbf{q}_d, ierr_i)
```

```
CHAPTER
                           CALL Statement
      15.2
                      DCDNML (x_d, mu_d, sigma_d)
             CALL DCDPOI
                                   (n_i, lamda_d, \mathbf{p}_d, \mathbf{q}_d, \mathbf{ierr}_i)
             CALL DCFT
                                   (\mathbf{A}_d, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_d)
             CALL DCHOL
       4.6
                                   (\mathbf{P}_d, ldp_i, n_i, \mathbf{D}_d, \mathbf{u}_d, tol_d, \mathbf{ierr}_i)
      2.14
             D =
                      DCI
                                   (x_d)
      2.14
             D =
                      DCIN
                                   (x_d)
       8.3
             CALL DCKDER (mode<sub>i</sub>, m_i, n_i, X_d, FVEC_d, FJAC_d, ldfjac_i, TEST_d, imax_i, jmax_i,
                                   tstmax_d
             CALL DCONCM (n_i, \mathbf{COEFF}_d)
      11.3
             CALL DCONMC (n_i, \mathbf{COEFF}_d)
      11.3
       6.3
             CALL DCOPY
                                   (n_i, DX_d, incx_i, \mathbf{DY}_d, incy_i)
      2.15
             D =
                      DCOS1
                                    (x_d)
      2.15
             D =
                      DCOSHM (x_d)
             D =
                      DCOSPX
      2.15
                                   (x_d)
       4.2
             CALL DCOV2
                                    (\mathbf{A}_d, lda_i, n_i, IP_i, var_d, \mathbf{ierr}_i)
             CALL DCOV3
       4.3
                                    (\mathbf{A}_d, lda_i, n_i, SING_d, var_d, \mathbf{WORK}_d, \mathbf{ierr}_i)
      11.2
             CALL DCPDRV
                                   (C_d, ndegc_i, \mathbf{D}_d, \mathbf{ndegd}_i)
             CALL DCPINT
                                   (A_d, ndega_i, \mathbf{B}_d, \mathbf{ndegb}_i)
                      DCPLTE
       2.8
             D =
                                   (em_d)
                                   (em_d)
       2.8
             D =
                      DCPLTK
                      DCPVAL
      11.2
             D =
                                   (P_d, ndeg_i, x_d)
      2.15
             D =
                      DCSHMM (x_d)
      14.3
             CALL DDASDB
                                   (kase_i, neq_i, t_d, Y_d, YPRIME_d, INFO_i, RWORK_d, IWORK_i, ires_i,
                                    ATOL_d, RTOL_d)
             CALL DDASLS
                                   (ddasf_x, neq_i, t_d, Y_d, YPRIME_d, INFO_i, ftol_d, rnktol_d, C_d, ldc_i, ltd_i, idid_i,
      14.3
                                   \overline{\text{RW}}\text{ORK}_d, lrw_i, IW\text{ORK}_i, liw_i)
      14.3
             CALL DDASLX
                                   (ddasf_x, neq_i, t_d, Y_d, YPRIME_d, tout_d, INFO_i, RTOL_d, ATOL_d, idid_i,
                                   RWORK<sub>d</sub>, lrw_i, IWORK<sub>i</sub>, liw_i)
       6.3
             D =
                      DDOT
                                    (n_i, DX_d, incx_i, DY_d, incy_i)
      2.10
            D =
                      DE1
                                   (x_d)
      2.10 D =
                      DEI
                                   (x_d)
       2.9
             CALL DELEFI
                                   (phi_d, k_d, \mathbf{f}_d, \mathbf{e}_d, \mathbf{ierr}_i)
       2.9
             CALL DELPII
                                    (phi_d, k2_d, alpha2_d, \mathbf{pi}_d, \mathbf{ierr}_i)
       2.2
             D =
                      DERF
                                   (x_d)
       2.2
             D =
                      DERFC
                                   (x_d)
       2.2
             D =
                      DERFCE
                                   (x_d)
      2.13
             D =
                      DERFCI
                                   (x_d)
      2.13 D =
                      DERFI
                                    (x_d)
      19.2
             CALL DERM1
                                    (subnam_c, ierr_i, level_i, mess_c, label_c, ddata_d, flag_c)
             CALL DERV1
      19.2
                                    (label_c, ddata_d, flag_c)
                                    (\mathbf{A}_d, lda_i, n_i, \mathbf{VR}_d, \mathbf{VI}_d, \mathbf{IFLAG}_i)
       5.3
             CALL DEVUN
             CALL DEVVUN
                                   (\mathbf{A}_d, lda_i, n_i, \mathbf{VR}_d, \mathbf{VI}_d, \mathbf{VEC}_d, \mathbf{IFLAG}_i, \mathbf{WORK}_d)
       5.4
             CALL DFFT
      10.5
                                    (\mathbf{A}(\mathbf{IR})_d, \mathbf{A}(\mathbf{II})_d, \mathbf{S}_d)
       9.1
             CALL DFMIN
                                    (\mathbf{x}_d, \mathbf{xorf}_d, \mathbf{mode}_i, tol_d)
      2.17
             D =
                      DFRENC
                                   (x_d)
      2.17
            D =
                      DFRENF
                                   (x_d)
      2.17
             D =
                      DFRENG
                                   (x_d)
                      DFRENS
      2.17
             D =
                                   (x_d)
      2.15
             D =
                      DGAM1
                                   (x_d)
             CALL DGAMI
      2.19
                                    (a_d, x_d, \mathbf{p}_d, \mathbf{q}_d, \mathbf{ierr}_i)
             CALL DGAMIE
      2.19
                                   (\mathbf{pqerr}_d)
             CALL DGAMIK (ptol_d, qtol_d, xerr_d, msgoff_i)
```

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CHAPTER CALL Statement DGAMMA (x_d) CALL DGECO $(\mathbf{A}_d, \, lda_i, \, n_i, \, \mathbf{IPVT}_i, \, \mathbf{rcond}_d, \, \mathbf{Z}_d)$ CALL DGED $(A_d, lda_i, n_i, IPVT_i, \mathbf{DET}_d)$ CALL DGEFA $(\mathbf{A}_d, lda_i, n_i, \mathbf{IPVT}_i, \mathbf{info}_i)$ $(\mathbf{A}_d, lda_i, n_i, \mathbf{B}_d, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{info}_i)$ CALL DGEFS 4.1CALL DGEFSC $(\mathbf{A}_d, lda_i, n_i, \mathbf{B}_d, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{rcond}_d, \mathbf{Z}_d)$ 4.1CALL DGEI $(\mathbf{A}_d, lda_i, n_i, IPVT_i, \mathbf{WORK}_d)$ CALL DGESLD $(A_d, lda_i, n_i, IPVT_i, \mathbf{C}_d)$ CALL DGESLT $(A_d, lda_i, n_i, IPVT_i, \mathbf{C}_d)$ 4.1 $(\mathbf{AR}_d, \mathbf{AI}_d, \mathit{lda}_i, n_i, \mathbf{EVAL}_d, \mathbf{VR}_d, \mathbf{VI}_d, \mathbf{WORK}_d, \mathbf{ierr}_i)$ DHERQL 5.2CALL 4.2CALL DHFTI $(\mathbf{A}_d, lda_i, m_i, n_i, \mathbf{B}_d, ldb_i, nb_i, tau_d, \mathbf{krank}_i, \mathbf{RNORM}_d, \mathbf{WORK}_d, \mathbf{IP}_i)$ 12.3D =DHINT $(x_d, nderiv_i, ntab_i, XTAB_d, YTAB_d, YPTAB_d)$ CALL DHTCC $(mode_i, lpivot_i, l1_i, m_i, \mathbf{U}_d, \mathbf{uparam}_d, \mathbf{C}_d, ldc_i, ncv_i)$ 6.4CALL DHTGEN $(mode_i, lpivot_i, l1_i, m_i, \mathbf{U}_d, ldu_i, colu_L, \mathbf{uparam}_d, \mathbf{C}_d, ldc_i, ncv_i, colc_L)$ CALL DILUP $(x_d, \mathbf{y}_d, ntab_i, XT_d, YT_d, ndeg_i, \mathbf{lup}_i, \mathbf{IOPT}_i, \mathbf{EOPT}_d)$ 12.1CALL DILUPM $(ndim_i, \mathbf{X}_d, \mathbf{y}_d, \mathbf{NTAB}_i, XT_d, YT_d, NDEG_i, \mathbf{LUP}_i, \mathbf{IOPT}_i, \mathbf{EOPT}_d)$ 12.212.2CALL DILUPMD $(ndim_i, \mathbf{X}_d, \mathbf{y}_d, \mathbf{NTAB}_i, \mathbf{XT}_d, \mathbf{YT}_d, NDEG_i, LUP_i, IOPT_i, EOPT_d)$ CALL DINT1 $(a_d, b_d, \mathbf{answer}_d, \mathbf{WORK}_d, \mathbf{IOPT}_i)$ 13.1CALL DINTA $(answer_d, WORK_d, IOPT_i)$ 13.1CALL DINTM $(ndimi_i, \mathbf{answer}_d, \mathbf{WORK}_d, nwork_i, \mathbf{IOPT}_i)$ 13.2 $(\mathbf{answer}_d, \mathbf{WORK}_d, \mathbf{IOPT}_i)$ 13.2CALL DINTMA 13.1CALL DINTOP $(\mathbf{IOPT}_i, WORK_d)$ 14.1CALL DIVA $(\mathbf{TSPECS}_d, \mathbf{Y}_d, \mathbf{F}_d, \mathbf{KORD}_i, neq_i, \operatorname{divaf}_x, \operatorname{divao}_x, itdim_i, iydim_i, ifdim_i,$ $ikdim_i$, $IOPT_i$) $(\mathbf{TSPECS}_d, \mathbf{Y}_d, \mathbf{F}_d, \mathbf{KORD}_i, \operatorname{divaf}_x, \operatorname{divao}_x)$ CALL DIVAA 14.1CALL DIVACO 14.1 $(\mathbf{ID}_i, \mathbf{RD}_d)$ CALL DIVADB $(lprint_i, \mathbf{TSPECS}_d, \mathbf{Y}_d, \mathbf{F}_d, KORD_i, text_c)$ CALL DIVAG $(\mathbf{TSPECS}_d, \mathbf{Y}_d, \mathbf{F}_d, \mathbf{KORD}_i, \mathbf{iflag}_i, \mathbf{nstop}_i, \mathbf{G6}_d, \mathbf{GT6}_d)$ 14.1CALL DIVAIN $(TSPECS_d, \mathbf{Y}_d, \mathbf{F}_d, KORD_i)$ 14.1CALL DIVAOP $(IOPTOP_i, FOPT_d)$ 14.1 CALL DIVSET 9.3 $(mode_i, \mathbf{IV}_i, liv_i, lv_i, \mathbf{V}_d)$ CALL DJACG $(\mathbf{mode}_i, m_i, n_i, \mathbf{Y}_d, F_d,$ 8.42.12CALL DLASUM $(x_d, n_i, A_d, \mathbf{y}_d)$ CALL DLESUM $(s_d, n_i, A_d, \mathbf{y}_d)$ 2.112.3D =**DLGAMA** (x_d) D =DLNREL 2.15 (x_d) CALL DMATP 6.1 $(A_d, lda_i, m_i, n_i, text_c)$ 6.2CALL DMATPR $(\mathbf{A}_d, idima_i, m_i, n_i, 'text'_c, lwidth_i, lunit_i, numdig_i)$ CALL DMESS $(\mathbf{MACT}_i, TEXT_c, IDAT_i, \mathbf{FDAT}_d)$ 19.3CALL DMLC01 $(\mathrm{dmlcfg}_x, \, \mathrm{n}_i, \, m_i, \, meq_i, \, A_d, \, lda_i, \, B_d, \, XL_d, \, XU_d, \, X_d, \, acc_d, \, iprint_i, \, mxeval_i,$ 9.2 \mathbf{IW}_i , liw_i , \mathbf{W}_d , lw_i) $(C_d, ndegc_i, \mathbf{D}_d, \mathbf{ndegd}_i)$ CALL DMPDRV 11.2CALL DMPINT $(A_d, ndega_i, \mathbf{B}_d, \mathbf{ndegb}_i)$ 11.2 **DMPVAL** $(P_d, ndeg_i, x_d)$ 11.2D =CALL DNLAFB $(\text{ndata}_i, \text{ nc}_i, \mathbf{COEF}_d, BND_d, \text{dcalcr}_x, \mathbf{IV}_i, liv_i, lv_i, \mathbf{V}_d)$ 9.3CALL DNLAFU $(\text{ndata}_i, \text{nc}_i, \mathbf{COEF}_d, \text{dcalcr}_x, \mathbf{IV}_i, liv_i, lv_i, \mathbf{V}_d)$ CALL DNLAGB $(\text{ndata}_i, \text{ nc}_i, \mathbf{COEF}_d, BND_d, \text{dcalcr}_x, \text{dcalcj}_x, \mathbf{IV}_i, liv_i, lv_i, \mathbf{V}_d)$ 9.3 $(\text{ndata}_i, \text{nc}_i, \mathbf{COEF}_d, \text{dcalcr}_x, \text{dcalcj}_x, \mathbf{IV}_i, \text{liv}_i, \text{lv}_i, \mathbf{V}_d)$ CALL DNLAGU 9.39.3CALL DNLSFB (ndata_i, na_i, nb_i, **ALF**_d, BND_d, **BET**_d, YDATA_d, dcalca_x, IND_i, lind_i, **IV**_i, $liv_i, lv_i, \mathbf{V}_d$ (ndata_i, na_i, nb_i, **ALF**_d, **BET**_d, YDATA_d, dcalca_x, IND_i, lind_i, **IV**_i, liv_i, lv_i, 9.3 CALL DNLSFU

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 \mathbf{V}_d

CHAPTER CALL Statement 9.3CALL DNLSGB $(ndata_i, na_i, nb_i, ALF_d, BND_d, BET_d, YDATA_d, dcalca_x, dcalcb_x, IND_i,$ $lind_i$, \mathbf{IV}_i , liv_i , lv_i , \mathbf{V}_d) CALL DNLSGU (ndata_i, na_i, nb_i, **ALF**_d, **BET**_d, *YDATA*_d, dcalca_T, dcalcb_T, *IND*_i, lind_i, **IV**_i, 9.3 $liv_i, lv_i, \mathbf{V}_d$ CALL DNQSOL $(\operatorname{dngfj}_x, n_i, \mathbf{X}_d, \mathbf{FVEC}_d, \operatorname{xtol}_d, \mathbf{IOPT}_i, \mathbf{W}_d, \operatorname{idim}w_i)$ 8.2 6.3D =DNRM2 $(n_i, DX_d, incx_i)$ 17.1CALL DPASCL (n_i, \mathbf{C}_d) $(m_i, X_d, Y_d, SD_d, nmax_i, seekn_L, comtrn_L, chbbas_L, \mathbf{P}_d, \mathbf{ndeg}_i, \mathbf{sigfac}_d, \mathbf{W}_d)$ 11.1 CALL DPFIT CALL DPLOT 16.3 $(xsize_d, ysize_d, X_d, nx_i, Y_d, \mathbf{OPT}_d, copt_c)$ CALL DPOLZ 7.1 $(A_d, ndeg_i, \mathbf{Z}_d, \mathbf{H}_d, \mathbf{ierr}_i)$ 7.2 CALL DPOLZ2 (A_d, \mathbf{Z}_d) 15.2D =**DPPNML** $(u_d, mu_d, sigma_d)$ 11.5D =**DPQUAD** $(korder_i, npc_i, XI_d, PCOEF_d, x1_d, x2_d)$ CALL DPRPL 16.2 $(y_d, symbol_c, image_c, nchar_i, y1_d, y2_d, reset_L)$ 16.1 CALL DPRPL1 $(X_d, Y_d, np_i, title_c, xname_c, yname_c, nlines_i, nchars_i, IMAGE_c, ierr_i)$ CALL DPRPL2 $(XY_d, idim_i, kc_i, JX_i, JY_i, NP_i, SYMBOL_c, title_c, xname_c, yname_c, nlines_i,$ $nchars_i$, IMAGE_c, ierr_i) 2.18 D =DPSI (x_d) CALL DPSIE 2.18 $(\mathbf{err}_d, \mathbf{ierflg}_i)$ CALL DPSIK 2.18 $(tol_d, xerr_d, msgoff_i)$ **DPVAL** 11.5D = $(korder_i, npc_i, XI_d, PCOEF_d, x_d, ideriv_i)$ 3.3 D =DRANE $(xmean_d)$ 3.2D =DRANG () CALL DRANGV $(\mathbf{A}_d, ndim_i, n_i, U_d, \mathbf{X}_d, \mathbf{havec}_L, \mathbf{ierr}_i)$ 3.2DRANR 3.3 D = $(alpha_d)$ DRANU 3.1 D =3.1 CALL DRANUA $(XTAB_d, n_i)$ CALL DRANUS $(XTAB_d, n_i, a_d, b_d)$ $(x_d, y_d, \mathbf{rc}_d, \mathbf{ierr}_i)$ 2.9 CALL DRCVAL 2.9 CALL DRDVAL $(x_d, y_d, z_d, \operatorname{rd}_d, \operatorname{ierr}_i)$ D =2.15DREXP (x_d) CALL DRFT $(\mathbf{A}_d, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_d)$ 10.4CALL DRFT1 $(\mathbf{A}_d, mode_c, m_i, \mathbf{ms}_i, \mathbf{S}_d)$ CALL DRFVAL $(x_d, y_d, z_d, \mathbf{rf}_d, \mathbf{ierr}_i)$ 2.92.9CALL DRJVAL $(x_d, y_d, z_d, r_d, \mathbf{rj}_d, \mathbf{ierr}_i)$ DRLOG 2.15D = (x_d) 2.15D =DRLOG1 (x_d) 6.3CALL DROT $(n_i, \mathbf{DX}_d, incx_i, \mathbf{DY}_d, incy_i, dc_d, ds_d)$ CALL DROTG $(\mathbf{da}_d, \mathbf{db}_d, \mathbf{dc}_d, \mathbf{ds}_d)$ 6.3CALL DROTM $(n_i, \mathbf{DX}_d, incx_i, \mathbf{DY}_d, incy_i, DPARAM_d)$ 6.3CALL DROTMG $(dd1_d, dd2_d, dx1_d, dx2_d, DPARAM_d)$ 6.3CALL DSBASD $(korder_i, left_i, TKNOTS_d, x_d, ideriv_i, \mathbf{BDERIV}_d)$ 11.6CALL DSBASI $(korder_i, ncoef_i, TKNOTS_d, x1_d, x2_d, \mathbf{j1}_i, \mathbf{j2}_i, \mathbf{BASI}_d)$ 11.6 CALL DSCAL $(n_i, da_d, \mathbf{DX}_d, incx_i)$ 6.3 $(korder_i, ncoef_i, TKNOTS_d, BCOEF_d, nderiv_i, BDIF_d)$ 11.6 CALL DSDIF 6.3D =DSDOT $(n_i, SX_r, incx_i, SY_r, incy_i)$ CALL DSFIND $(XT_d, ix1_i, ix2_i, x_d, \mathbf{left}_i, \mathbf{mode}_i)$ 11.6 $(X_d, Y_d, SD_d, nxy_i, korder_i, ncoef_i, TKNOTS_d, BCOEF_d, sigfac_d, ierr1_i,$ 11.5CALL DSFIT $ldw_i, \mathbf{W}_d)$

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 $ISET_i$, **INFO**_i, **W**_d)

CALL DSFITC

 $(CCODE_c, X_d, Y_d, SD_d, korder_i, ncoef_i, TKNOTS_d, BCOEF_d, rnorm_d,$

```
CHAPTER
                           CALL Statement
      2.14
             D =
                      DSI
                                   (x_d)
      2.15
             D =
                      DSIN1
                                   (x_d)
      2.15
             D =
                      DSINHM
                                   (x_d)
                      DSINPX
      2.15
            D =
                                   (x_d)
             CALL DSORT
                                   (\mathbf{I}_d, m_i, n_i)
      18.1
             CALL
                     DSORTP
                                   (I_d, m_i, n_i, \mathbf{IP}_i)
      18.1
             CALL DSORTQ
                                   (I_d, m_i, n_i, \mathbf{IP}_i)
             CALL DSPGE
                                   (n_i, \mathbf{ISPEC}_i, \mathbf{IA}_i, \mathbf{A}_d, \mathbf{B}_d, \mathbf{OPT}_d)
       4.7
                      DSQUAD
                                   (korder_i, ncoef_i, TKNOTS_d, BCOEF_d, x1_d, x2_d)
      11.5
            D =
                                   (XTAB_d, nx_i, STATS_d, IHIST_i, ncells_i, x1_d, x2_d)
             CALL DSTAT1
      15.1
      15.1
             CALL DSTAT2
                                   (STATS_d, IHIST_i, ncells_i, x1_d, x2_d)
             CALL DSTOP
                                   (korder_i, ncoef_i, TKNOTS_d, BCOEF_d, BDIF_d, npc_i, XI_d, PCOEF_d)
             CALL DSVA
                                   (\mathbf{A}_d, lda_i, m_i, n_i, mdata_i, \mathbf{B}_d, \mathbf{SING}_d, KPVEC_i, NAMES_c, iscale_i, \mathbf{D}_d,
       4.3
                                   \mathbf{WORK}_d)
      11.5 D =
                      DSVAL
                                   (korder_i, ncoef_i, TKNOTS_d, BCOEF_d, x_d, ideriv_i)
      11.6 CALL DSVALA
                                   (korder_i, ncoef_i, TKNOTS_d, nderiv_i, BDIF_d, x_d, SVALUE_d)
       4.3
            CALL DSVDRS
                                   (\mathbf{A}_d, lda_i, m_i, n_i, \mathbf{B}_d, ldb_i, nb_i, \mathbf{SING}_d, \mathbf{WORK}_d)
             CALL DSWAP
                                   (n_i, \mathbf{DX}_d, incx_i, \mathbf{DY}_d, incy_i)
       5.1 CALL \overline{\text{DSYMQ}}L (\mathbf{A}_d, lda_i, n_i, \mathbf{EVAL}_d, \mathbf{WORK}_d, \mathbf{ierr}_i)
            CALL DTCST
                                   (\mathbf{A}_d, tcs_c, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_d)
      12.4 CALL DTGFI
                                   (X_d, Y_d, Z_d, DZ_d, TRIANG_i, nt_i, B_i, mb_i, ncont_i, Q_d, \mathbf{zout}_d, wantdz_L,
                                   \mathbf{DZOUT}_d, \mathbf{mode}_i, \mathbf{SAVWRK}_d)
      12.4
             CALL DTGGRD (X_d, Y_d, np_i, \mathbf{IP}_i, \mathbf{W}_d, \mathbf{TRIANG}_i, mt_i, \mathbf{B}_i, mb_i, \mathbf{nt}_i, \mathbf{INFO}_i)
             CALL DTGPD
                                   (X_d, Y_d, Z_d, \mathbf{DZ}_d, np_i, TRIANG_i, nt_i, \mathbf{IWORK}_i)
             CALL DTGPRG (X_d, Y_d, np_i, TRIANG_i, B_i, nb_i, nt_i)
      12.4
             CALL DTGREC
                                  (X_d, Y_d, Z_d, DZ_d, np_i, TRIANG_i, nt_i, B_i, nb_i, XYLIM_d, nx_i, ny_i, zfill_d,
                                   \mathbf{ZVALS}_d, mx_i, my_i, ncont_i, wantpd_L, \mathbf{DZVALS}_d)
             CALL DUACOS (U_d, \mathbf{Z}_d)
      17.2
             CALL DUASIN
                                   (U_d, \mathbf{Z}_d)
      17.2 CALL DUATAN (U_d, \mathbf{Z}_d)
      17.2 CALL DUATN2
                                   (U_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUCOS
                                   (U_d, \mathbf{Z}_d)
      17.2 CALL DUCOSH (U_d, \mathbf{Z}_d)
      17.2 CALL \overline{\mathrm{DUDIF}}
                                   (U_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUDIF1
                                   (a_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUEXP
                                   (U_d, \mathbf{Z}_d)
      17.2
             CALL DUGETN (\mathbf{n}_i, \mathbf{m1}_i, \mathbf{m2}_i, \mathbf{l1}_i, \mathbf{l2}_i)
      17.2 CALL DULOG
                                   (U_d, \mathbf{Z}_d)
             CALL DUPRO
                                   (U_d, V_d, \mathbf{Z}_d)
             CALL DUPRO1
                                   (a_d, V_d, \mathbf{Z}_d)
      17.2
      17.2 CALL DUPWRI
                                   (i_i, V_d, \mathbf{Z}_d)
      17.2 CALL DUQUO
                                   (U_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUQUO1
                                   (a_d, V_d, \mathbf{Z}_d)
      17.2
             CALL DUREV
                                   (UT_d, TU_d, ldim_i, rcond_d, IWORK_i, WORK_d)
      17.2 CALL DUSET
                                   (val_d, key_i, \mathbf{U}_d)
      17.2 CALL DUSETN
                                   (n_i, m1_i, m2_i)
             CALL DUSIN
                                   (U_d, \mathbf{Z}_d)
      17.2
             CALL DUSINH
                                   (U_d, \mathbf{Z}_d)
      17.2 CALL DUSQRT
                                   (U_d, \mathbf{Z}_d)
      17.2 CALL DUSUM
                                   (U_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUSUM1 (a_d, V_d, \mathbf{Z}_d)
      17.2 CALL DUTAN
                                  (U_d, \mathbf{Z}_d)
```

CHAPTER CALL Statement 17.2CALL DUTANH (U_d, \mathbf{Z}_d) CALL DVECP $(V_d, n_i, text_c)$ CALL DVECPR $(\mathbf{V}_d, n_i, 'text'_c, lwidth_i, lunit_i, numdig_i)$ CALL DWACOS (n_i, X_d, \mathbf{Z}_d) CALL DWASIN (n_i, X_d, \mathbf{Z}_d) CALL DWATAN (n_i, X_d, \mathbf{Z}_d) 17.117.1 CALL DWATN2 $(n_i, X_d, Y_d, \mathbf{Z}_d)$ CALL DWCHN 17.1 (n_i, X_d, \mathbf{F}_d) CALL DWCOS (n_i, X_d, \mathbf{Z}_d) 17.1CALL DWCOSH (n_i, X_d, \mathbf{Z}_d) 17.1CALL DWDIF 17.1 $(n_i, X_d, Y_d, \mathbf{Z}_d)$ CALL DWDIF1 $(n_i, a_d, Y_d, \mathbf{Z}_d)$ 17.1 CALL DWEXP (n_i, X_d, \mathbf{Z}_d) CALL DWLOG 17.1 (n_i, X_d, \mathbf{Z}_d) 17.1 CALL DWPRO $(n_i, X_d, Y_d, \mathbf{Z}_d)$ 17.1 CALL DWPRO1 $(n_i, a_d, Y_d, \mathbf{Z}_d)$ 17.1 CALL DWPWRI $(n_i, i_i, Y_d, \mathbf{Z}_d)$ 17.1 CALL DWQUO $(n_i, X_d, Y_d, \mathbf{Z}_d)$ 17.1 CALL DWQUO1 $(n_i, a_d, Y_d, \mathbf{Z}_d)$ CALL DWRCHN (n_i, X_d, \mathbf{F}_d) CALL DWSET 17.1 $(n_i, val_d, deriv_d, \mathbf{W}_d)$ CALL DWSIN 17.1 (n_i, X_d, \mathbf{Z}_d) 17.1CALL DWSINH (n_i, X_d, \mathbf{Z}_d) CALL DWSQRT (n_i, X_d, \mathbf{Z}_d) 17.1CALL DWSUM $(n_i, X_d, Y_d, \mathbf{Z}_d)$ 17.1CALL DWSUM1 $(n_i, a_d, Y_d, \mathbf{Z}_d)$ 17.1 (n_i, X_d, \mathbf{Z}_d) 17.1CALL DWTAN 17.1CALL DWTANH (n_i, X_d, \mathbf{Z}_d) $(\mathbf{TS}_d, \mathbf{Y}_d, \mathbf{OPT}_d, \mathbf{IDAT}_i, \mathbf{DAT}_d, \mathbf{WORK}_d)$ CALL DXRK8 14.214.2CALL DXRK8A $(\mathbf{TS}_d, \mathbf{Y}_d, F_d, \mathbf{IDAT}_i, \mathbf{DAT}_d, \mathbf{WORK}_d)$ 14.2 CALL DXRK8G $(\mathbf{TS}_d, \mathbf{Y}_d, \mathbf{F}_d, \mathbf{IDAT}_i)$ 17.3 D =**DZABS** (A_d) 8.1 CALL DZERO $(\mathbf{x}\mathbf{1}_d, \mathbf{f}\mathbf{1}_d, \mathbf{x}\mathbf{2}_d, \mathbf{f}\mathbf{2}_d, \mathbf{mode}_i, tol_d)$ 19.2CALL ERFIN CALL ERMOR $(mess_c, flag_c)$ CALL ERMSET 19.2 $(idelta_i)$ CALL ERMSG 19.2 $(subnam_c, ierr_i, level_i, mess_c, flag_c)$ CALL EXSORT 18.4 $(dataop_x, n_i, \mathbf{L}_i, option_i, \mathbf{outfil}_i)$ 18.2CALL GSORTP $(compar_i, n_i, \mathbf{IP}_i)$ I1MACH19.1I = (j_i) 6.3 I =**ICAMAX** $(n_i, CX_z, incx_i)$ 6.3 I =**IDAMAX** $(n_i, DX_d, incx_i)$ IDRANP 3.3 I = $(xmean_d)$ 15.1 CALL IDSTA1 $(ITAB_i, ni_i, ISTATS_i, XSTATS_d, IHIST_i, ilow_i, ncells_i)$ CALL IDSTA2 15.1 $(ISTATS_i, XSTATS_d, IHIST_i, ilow_i, ncells_i)$ 19.2CALL IERM1 $(subnam_c, ierr_i, level_i, mess_c, label_c, idata_i, flag_c)$ 19.2 CALL IERV1 $(label_c, idata_i, flag_c)$ CALL IMATP 6.1 $(A_i, lda_i, m_i, n_i, text_c)$ CALL IMATPR $(A_i, idima_i, m_i, n_i, 'text'_c, lwidth_i, lunit_i)$ 18.3 CALL INSORT $(compar_i, n_i, \mathbf{L}_i, \mathbf{l1}_i)$ 6.3 I =**ISAMAX** $(n_i, SX_r, incx_i)$ CALL ISORT (\mathbf{I}_i, m_i, n_i) 18.1 CALL ISORTP $(I_i, m_i, n_i, \mathbf{IP}_i)$

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```
CHAPTER
                          CALL Statement
      18.1
             CALL ISORTQ
                                  (I_i, m_i, n_i, \mathbf{IP}_i)
                      ISRANP
                                   (xmean_r)
       3.3
             I =
             CALL ISSTA1
                                   (ITAB_i, ni_i, ISTATS_i, XSTATS_r, IHIST_i, ilow_i, ncells_i)
      15.1
             CALL ISSTA2
                                   (ISTATS_i, XSTATS_r, IHIST_i, ilow_i, ncells_i)
      15.1
             CALL IVECP
                                   (V_i, n_i, text_c)
             CALL IVECPR
                                  (V_i, n_i, 'text'_c, lwidth_i, lunit_i)
       6.2
      19.3
             CALL MESS
                                   (\mathbf{MACT}_i, TEXT_c, IDAT_i)
      18.3 CALL PVEC
                                   (\mathbf{L}_i, l1_i)
      19.1 R =
                      R1MACH (j_i)
             CALL RAN1
       3.1
             CALL RANGET (KSEED<sub>i</sub>)
       3.1
             CALL RANPUT (KSEED_i)
             CALL RANSIZ
                                  (\mathbf{ksize}_i)
       3.1
             CALL RN2
       3.1
                                   (\mathbf{mode}_i)
       4.4 CALL SACCUM (\mathbf{A}_r, lda_i, n_i, \mathbf{B}_r, ldb_i, nb_i, ir1_i, nrows_i, ncount_i)
       2.1 R =
                      SACOSH (x_r)
       2.1
             R =
                      SACSCH
                                  (x_r)
       2.1
             R =
                      SACTNH
                                  (x_r)
                      SASECH
             R =
       2.1
                                  (x_r)
             R =
                      SASINH
       2.1
                                  (x_r)
                      SASUM
             R =
                                   (n_i, SX_r, incx_i)
       6.3
       2.1
             R =
                      SATANH
                                  (x_r)
       6.3
             CALL SAXPY
                                   (n_i, sa_r, SX_r, incx_i, \mathbf{SY}_r, incy_i)
             CALL SBACC
       4.5
                                   (\mathbf{G}_r, ldg_i, nb_i, \mathbf{ir}_i, mt_i, jt_i, \mathbf{jtprev}_i, \mathbf{ierr2}_i)
                      SBESJ0
       2.4
             R =
                      SBESJ\overline{1}
       2.4
             R =
                                  (x_r)
       2.5
             CALL
                     SBESJN
                                  (x_r, alpha_r, num_i, \mathbf{BJ}_r)
       2.4
             R =
                      SBESY0
                                  (x_r)
                      SBESY1
       2.4
             R =
                                   (x_r)
       2.5
             CALL SBESYN
                                  (x_r, alpha_r, num_i, \mathbf{BY}_r)
             CALL SBI0K0
                                   (x_r, \mathbf{bi0}_r, \mathbf{bk0}_r, iwant_i, \mathbf{info}_i)
       2.6
                                   (x_r, \mathbf{bi1}_r, \mathbf{bk1}_r, iwant_i, \mathbf{info}_i)
       2.6
             CALL SBI1K1
      2.20 R =
                      SBINOM
                                  (n_i, k_i)
             CALL SBSOL
                                   (mode_i, G_r, ldg_i, nb_i, ir_i, jtprev_i, \mathbf{X}_r, n_i, \mathbf{rnorm}_r, \mathbf{ierr3}_i)
       4.5
      11.4
             CALL SC2FIT
                                   (X_r, Y_r, SD_r, nxy_i, B_r, nb_i, \mathbf{W}_r, ldw_i, \mathbf{YKNOT}_r, \mathbf{YPKNOT}_r, \mathbf{sigfac}_r,
                                  ierr1_i
       6.3 R =
                      SCASUM (n_i, CX_z, incx_i)
      15.3
             CALL SCDCHI
                                  (chisq_r, nu_r, \mathbf{p}_r, \mathbf{q}_r, \mathbf{ierr}_i)
      15.2 R =
                      SCDNML (x_r, mu_r, sigma_r)
             CALL SCDPOI
      15.4
                                  (n_i, lamda_r, \mathbf{p}_r, \mathbf{q}_r, \mathbf{ierr}_i)
             CALL SCFT
      10.3
                                   (\mathbf{A}_r, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_r)
             CALL SCHOL
       4.6
                                   (\mathbf{P}_r, ldp_i, n_i, \mathbf{D}_r, \mathbf{u}_r, tol_r, \mathbf{ierr}_i)
      2.14 R =
                      SCI
                                   (x_r)
      2.14
             R =
                      SCIN
                                   (x_r)
             CALL SCKDER (mode<sub>i</sub>, m_i, n_i, \mathbf{X}_r, FVEC_r, FJAC_r, ldfjac_i, \mathbf{TEST}_r, \mathbf{imax}_i, \mathbf{jmax}_i,
       8.3
                                  tstmax_r)
                      SCNRM2 (n_i, CX_z, incx_i)
       6.3
             R =
                     SCONCM (n_i, \mathbf{COEFF}_r)
             CALL
      11.3
             CALL SCONMC (n_i, \mathbf{COEFF}_r)
             CALL SCOPY
       6.3
                                  (n_i, SX_r, incx_i, SY_r, incy_i)
             R =
                      SCOS1
      2.15
                                   (x_r)
      2.15
             R =
                      SCOSHM (x_r)
                      SCOSPX (x_r)
      2.15 R =
```

```
CHAPTER
                             CALL Statement
        4.2
              CALL SCOV2
                                      (\mathbf{A}_r, lda_i, n_i, IP_i, var_r, \mathbf{ierr}_i)
        4.3
              CALL SCOV3
                                      (\mathbf{A}_r, lda_i, n_i, SING_r, var_r, \mathbf{WORK}_r, \mathbf{ierr}_i)
              CALL
                       SCPDRV
                                      (C_r, ndegc_i, \mathbf{D}_r, \mathbf{ndegd}_i)
              CALL SCPINT
                                      (A_r, ndega_i, \mathbf{B}_r, \mathbf{ndegb}_i)
      11.2
                        SCPLTE
       2.8
              R =
                                      (em_r)
                        SCPLTK
       2.8
              R =
                                      (em_r)
      11.2
              R =
                        SCPVAL
                                      (P_r, ndeg_i, x_r)
      2.15
              R =
                        SCSHMM
                                     (x_r)
              CALL
                       SDASDB
                                      (kase_i, neq_i, t_r, Y_r, YPRIME_r, INFO_i, RWORK_r, IWORK_i, ires_i,
      14.3
                                      ATOL_r, RTOL_r)
                                      (sdasf_x, neq_i, t_r, Y_r, YPRIME_r, INFO_i, ftol_r, rnktol_r, C_r, ldc_i, ltd_i, idid_i,
      14.3
              CALL SDASLS
                                      RWORK_r, lrw_i, IWORK_i, liw_i)
              \begin{array}{ccc} CALL & \underline{SDASLX} \end{array}
                                      (sdasf_x, neq_i, t_r, Y_r, YPRIME_r, tout_r, INFO_i, RTOL_r, ATOL_r, idid_i,
      14.3
                                      RWORK_r, lrw_i, IWORK_i, liw_i)
                        SDOT
                                      (n_i, SX_r, incx_i, SY_r, incy_i)
       6.3
              R =
        6.3
              R =
                       SDSDOT
                                      (n_i, sb_r, SX_r, incx_i, SY_r, incy_i)
      2.10
              R =
                       SE1
                                      (x_r)
      2.10
              R =
                        SEI
                                      (x_r)
                       SELEFI
       2.9
              CALL
                                      (phi_r, k_r, \mathbf{f}_r, \mathbf{e}_r, \mathbf{ierr}_i)
        2.9
              CALL
                       SELPII
                                      (phi_r, k2_r, alpha2_r, \mathbf{pi}_r, \mathbf{ierr}_i)
                        SERF
        2.2
              R =
                                      (x_r)
        2.2
              R =
                       SERFC
                                      (x_r)
        2.2
             R =
                       SERFCE
                                      (x_r)
      2.13
              R =
                       SERFCI
                                      (x_r)
                        SERFI
      2.13
              R =
                                      (x_r)
                       SERM1
      19.2
              CALL
                                      (subnam_c, ierr_i, level_i, mess_c, label_c, sdata_r, flag_c)
      19.2
              CALL
                       SERV1
                                      (label_c, sdata_r, flag_c)
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{VR}_r, \mathbf{VI}_r, \mathbf{IFLAG}_i)
       5.3
              CALL SEVUN
              CALL SEVVUN
       5.4
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{VR}_r, \mathbf{VI}_r, \mathbf{VEC}_r, \mathbf{IFLAG}_i, \mathbf{WORK}_r)
      10.5
              CALL SFFT
                                      (\mathbf{A}(\mathbf{IR})_r, \mathbf{A}(\mathbf{II})_r, \mathbf{S}_r)
              CALL SFMIN
                                      (\mathbf{x}_r, \mathbf{xorf}_r, \mathbf{mode}_i, tol_r)
       9.1
      2.17
              R =
                       SFRENC
                                      (x_r)
      2.17
              R =
                        SFRENF
                                      (x_r)
      2.17
                        SFRENG
              R =
                                      (x_r)
      2.17
              R =
                       SFRENS
                                      (x_r)
                        SGAM1
      2.15
              R =
                                      (x_r)
                       SGAMI
      2.19
              CALL
                                      (a_r, x_r, \mathbf{p}_r, \mathbf{q}_r, \mathbf{ierr}_i)
      2.19
              CALL SGAMIE
                                      (\mathbf{pqerr}_r)
      2.19
              CALL SGAMIK
                                      (ptol_r, qtol_r, xerr_r, msgoff_i)
                        SGAMMA
             R =
        2.3
                                      (x_r)
              CALL
                       SGECO
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{IPVT}_i, \mathbf{rcond}_r, \mathbf{Z}_r)
       4.1
              CALL SGED
                                      (A_r, lda_i, n_i, IPVT_i, \mathbf{DET}_r)
        4.1
              CALL SGEFA
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{IPVT}_i, \mathbf{info}_i)
        4.1
              CALL SGEFS
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{B}_r, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{info}_i)
        4.1
              CALL SGEFSC
        4.1
                                      (\mathbf{A}_r, lda_i, n_i, \mathbf{B}_r, ldb_i, nb_i, \mathbf{IPVT}_i, \mathbf{rcond}_r, \mathbf{Z}_r)
        4.1
              CALL SGEI
                                      (\mathbf{A}_r, lda_i, n_i, IPVT_i, \mathbf{WORK}_r)
              CALL SGESLD
                                      (A_r, lda_i, n_i, IPVT_i, \mathbf{C}_r)
        4.1
              CALL SGESLT
                                      (A_r, lda_i, n_i, IPVT_i, \mathbf{C}_r)
        5.2
              CALL SHERQL
                                      (AR_r, AI_r, lda_i, n_i, EVAL_r, VR_r, VI_r, WORK_r, ierr_i)
              CALL SHFTI
        4.2
                                      (\mathbf{A}_r, lda_i, m_i, n_i, \mathbf{B}_r, ldb_i, nb_i, tau_r, \mathbf{krank}_i, \mathbf{RNORM}_r, \mathbf{WORK}_r, \mathbf{IP}_i)
             R =
                        SHINT
                                      (x_r, nderiv_i, ntab_i, XTAB_r, YTAB_r, YPTAB_r)
      12.3
             CALL SHTCC
                                      (mode_i, lpivot_i, l1_i, m_i, \mathbf{U}_r, \mathbf{uparam}_r, \mathbf{C}_r, ldc_i, ncv_i)
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CHAPTER CALL Statement CALL SHTGEN $(mode_i, lpivot_i, l1_i, m_i, \mathbf{U}_r, ldu_i, colu_L, \mathbf{uparam}_r, \mathbf{C}_r, ldc_i, ncv_i, colc_L)$ CALL SILUP $(x_r, \mathbf{y}_r, ntab_i, XT_r, YT_r, ndeg_i, \mathbf{lup}_i, \mathbf{IOPT}_i, \mathbf{EOPT}_r)$ CALL SILUPM $(ndim_i, \mathbf{X}_r, \mathbf{y}_r, \mathbf{NTAB}_i, XT_r, YT_r, NDEG_i, \mathbf{LUP}_i, \mathbf{IOPT}_i, \mathbf{EOPT}_r)$ $(ndim_i, \mathbf{X}_r, \mathbf{y}_r, \mathbf{NTAB}_i, \mathbf{XT}_r, \mathbf{YT}_r, NDEG_i, LUP_i, IOPT_i, EOPT_r)$ 12.2 CALL SILUPMD CALL SINT1 $(a_r, b_r, \mathbf{answer}_r, \mathbf{WORK}_r, \mathbf{IOPT}_i)$ 13.1CALL SINTA 13.1 $(answer_r, WORK_r, IOPT_i)$ 13.2CALL SINTM $(ndimi_i, \mathbf{answer}_r, \mathbf{WORK}_r, nwork_i, \mathbf{IOPT}_i)$ 13.2 CALL SINTMA $(answer_r, WORK_r, IOPT_i)$ (**IOPT**_i, $WORK_r$) 13.1 CALL SINTOP CALL SIVA $(\mathbf{TSPECS}_r, \mathbf{Y}_r, \mathbf{F}_r, \mathbf{KORD}_i, neq_i, sivaf_x, sivao_x, itdim_i, iydim_i, ifdim_i,$ 14.1 $ikdim_i$, $IOPT_i$) CALL SIVAA $(\mathbf{TSPECS}_r, \mathbf{Y}_r, \mathbf{F}_r, \mathbf{KORD}_i, \underline{\operatorname{sivaf}}_x, \underline{\operatorname{sivao}}_x)$ CALL SIVACO $(\mathbf{ID}_i, \mathbf{RD}_r)$ 14.1CALL SIVADB $(lprint_i, \mathbf{TSPECS}_r, \mathbf{Y}_r, \mathbf{F}_r, KORD_i, text_c)$ 14.114.1 CALL SIVAG $(\mathbf{TSPECS}_r, \mathbf{Y}_r, \mathbf{F}_r, \mathbf{KORD}_i, \mathbf{iflag}_i, \mathbf{nstop}_i, \mathbf{G6}_r, \mathbf{GT6}_r)$ 14.1 CALL SIVAIN $(TSPECS_r, \mathbf{Y}_r, \mathbf{F}_r, KORD_i)$ 14.1CALL SIVAOP $(IOPTOP_i, FOPT_r)$ CALL SIVSET $(mode_i, \mathbf{IV}_i, liv_i, lv_i, \mathbf{V}_r)$ 8.4 CALL SJACG $(\mathbf{mode}_i, m_i, n_i, \mathbf{Y}_r, F_r,$ $(x_r, n_i, A_r, \mathbf{y}_r)$ CALL SLASUM 2.12CALL SLESUM 2.11 $(s_r, n_i, A_r, \mathbf{y}_r)$ 2.3R =SLGAMA (x_r) 2.15R =SLNREL (x_r) CALL SMATP 6.1 $(A_r, lda_i, m_i, n_i, text_c)$ CALL SMATPR $(\mathbf{A}_r, idima_i, m_i, n_i, 'text'_c, lwidth_i, lunit_i, numdig_i)$ 6.2CALL SMESS 19.3 $(\mathbf{MACT}_i, TEXT_c, IDAT_i, \mathbf{FDAT}_r)$ 9.2CALL SMLC01 $(\operatorname{smlcfg}_x, n_i, m_i, meq_i, A_r, lda_i, B_r, XL_r, XU_r, \mathbf{X}_r, acc_r, iprint_i, mxeval_i,$ \mathbf{IW}_i , liw_i , \mathbf{W}_r , lw_i) $(C_r, ndegc_i, \mathbf{D}_r, \mathbf{ndegd}_i)$ 11.2CALL SMPDRV CALL SMPINT $(A_r, ndega_i, \mathbf{B}_r, \mathbf{ndegb}_i)$ 11.211.2 R =SMPVAL $(P_r, ndeg_i, x_r)$ CALL SNLAFB $(ndata_i, nc_i, COEF_r, BND_r, dcalcr_x, IV_i, liv_i, lv_i, V_r)$ 9.3CALL SNLAFU $(ndata_i, nc_i, COEF_r, dcalcr_x, IV_i, liv_i, lv_i, V_r)$ CALL SNLAGB $(ndata_i, nc_i, COEF_r, BND_r, dcalcr_x, dcalcj_x, IV_i, liv_i, lv_i, V_r)$ CALL SNLAGU $(\text{ndata}_i, \text{nc}_i, \text{COEF}_r, \text{dcalcr}_x, \text{dcalcj}_x, \text{IV}_i, \text{liv}_i, \text{lv}_i, \text{V}_r)$ CALL SNLSFB (ndata_i, na_i, nb_i, **ALF**_r, BND_r, **BET**_r, YDATA_r, dcalca_x, IND_i, lind_i, **IV**_i, 9.3 $liv_i, lv_i, \mathbf{V}_r$ $(\text{ndata}_i, \text{na}_i, \text{nb}_i, \mathbf{ALF}_r, \mathbf{BET}_r, YDATA_r, \text{dcalca}_x, IND_i, lind_i, \mathbf{IV}_i, liv_i, lv_i, lv$ 9.3CALL SNLSFU $(ndata_i, na_i, nb_i, ALF_r, BND_r, BET_r, YDATA_r, dcalca_x, dcalcb_x, IND_i,$ 9.3CALL SNLSGB $lind_i$, \mathbf{IV}_i , liv_i , lv_i , \mathbf{V}_r) (ndata_i, na_i, nb_i, **ALF**_r, **BET**_r, YDATA_r, dcalca_x, dcalcb_x, IND_i, lind_i, **IV**_i, CALL SNLSGU $liv_i, lv_i, \mathbf{V}_r$ 8.2 CALL SNQSOL $(\operatorname{dngfj}_x, n_i, \mathbf{X}_r, \mathbf{FVEC}_r, \operatorname{xtol}_r, \mathbf{IOPT}_i, \mathbf{W}_r, \operatorname{idim}w_i)$ 6.3R =SNRM2 $(n_i, SX_r, incx_i)$ 17.1CALL SPASCL (n_i, \mathbf{C}_r) CALL SPFIT $(m_i, X_r, Y_r, SD_r, nmax_i, seekn_L, comtrn_L, chbbas_L, \mathbf{P}_r, \mathbf{ndeg}_i, \mathbf{sigfac}_r, \mathbf{W}_r)$ 11.1 CALL SPLOT $(xsize_r, ysize_r, X_r, nx_i, Y_r, \mathbf{OPT}_r, copt_c)$ 16.37.1 CALL SPOLZ $(A_r, ndeg_i, \mathbf{Z}_z, \mathbf{H}_r, ierr_i)$ 7.2 CALL SPOLZ2 (A_r, \mathbf{Z}_z) SPPNML 15.2 R = $(u_r, mu_r, sigma_r)$

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SPQUAD (korder_i, npc_i , XI_r , $PCOEF_r$, $x1_r$, $x2_r$)

11.5 R =

CHAPTER CALL Statement CALL SPRPL $(y_r, symbol_c, \mathbf{image}_c, nchar_i, y1_r, y2_r, reset_L)$ CALL SPRPL1 $(X_r, Y_r, np_i, title_c, xname_c, yname_c, nlines_i, nchars_i, IMAGE_c, ierr_i)$ CALL SPRPL2 $(XY_r, idim_i, kc_i, JX_i, JY_i, NP_i, SYMBOL_c, title_c, xname_c, yname_c, nlines_i,$ 16.1 $nchars_i$, IMAGE, ierr_i) SPSI 2.18R = (x_r) **SPSIE** 2.18 CALL $(\mathbf{err}_r, \mathbf{ierflg}_i)$ 2.18CALL **SPSIK** $(tol_r, xerr_r, msgoff_i)$ $(korder_i, npc_i, XI_r, PCOEF_r, x_r, ideriv_i)$ 11.5R =SPVAL **SRANE** 3.3 R = $(xmean_r)$ SRANG 3.2R =3.2 CALL SRANGV (\mathbf{A}_r , $ndim_i$, n_i , U_r , \mathbf{X}_r , havec_L, ierr_i) 3.3 R =SRANR $(alpha_r)$ R =SRANU 3.1 CALL SRANUA (**XTAB**_r, n_i) 3.1 CALL SRANUS 3.1 $(XTAB_r, n_i, a_r, b_r)$ CALL SRCVAL $(x_r, y_r, \mathbf{rc}_r, \mathbf{ierr}_i)$ $(x_r, y_r, z_r, \operatorname{rd}_r, \operatorname{ierr}_i)$ 2.9CALL SRDVAL 2.15R =SREXP (x_r) CALL SRFT 10.4 $(\mathbf{A}_r, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_r)$ CALL SRFT1 10.1 $(\mathbf{A}_r, mode_c, m_i, \mathbf{ms}_i, \mathbf{S}_r)$ CALL SRFVAL $(x_r, y_r, z_r, \mathbf{rf}_r, \mathbf{ierr}_i)$ 2.9CALL SRJVAL $(x_r, y_r, z_r, r_r, \mathbf{rj}_r, \mathbf{ierr}_i)$ 2.15 R =SRLOG (x_r) R =SRLOG1 2.15 (x_r) CALL SROT 6.3 $(n_i, \mathbf{SX}_r, incx_i, \mathbf{SY}_r, incy_i, sc_r, ss_r)$ CALL SROTG 6.3 $(\mathbf{sa}_r, \mathbf{sb}_r, \mathbf{sc}_r, \mathbf{ss}_r)$ CALL SROTM $(n_i, \mathbf{SX}_r, incx_i, \mathbf{SY}_r, incy_i, SPARAM_r)$ CALL SROTMG $(\mathbf{sd1}_r, \mathbf{sd2}_r, \mathbf{sx1}_r, sx2_r, \mathbf{SPARAM}_r)$ 6.311.6 CALL SSBASD $(korder_i, left_i, TKNOTS_r, x_r, ideriv_i, BDERIV_r)$ CALL SSBASI $(korder_i, ncoef_i, TKNOTS_r, x1_r, x2_r, \mathbf{j1}_i, \mathbf{j2}_i, \mathbf{BASI}_r)$ 11.6 CALL SSCAL 6.3 $(n_i, sa_r, \mathbf{SX}_r, incx_i)$ $(korder_i, ncoef_i, TKNOTS_r, BCOEF_r, nderiv_i, BDIF_r)$ 11.6 CALL SSDIF 11.6 CALL SSFIND $(XT_r, ix1_i, ix2_i, x_r, \mathbf{left}_i, \mathbf{mode}_i)$ CALL SSFIT $(X_r, Y_r, SD_r, nxy_i, korder_i, ncoef_i, TKNOTS_r, BCOEF_r, sigfac_r, ierr1_i,$ 11.5 ldw_i, \mathbf{W}_r) $(CCODE_c, X_r, Y_r, SD_r, korder_i, ncoef_i, TKNOTS_r, BCOEF_r, rnorm_r,$ 11.5 CALL SSFITC $ISET_i$, **INFO**_i, **W**_r) 2.14 R =SSI (x_r) 2.15R =SSIN1 (x_r) **SSINHM** 2.15R = (x_r) SSINPX 2.15R = (x_r) SSORT 18.1 CALL (\mathbf{I}_r, m_i, n_i) SSORTP 18.1 CALL $(I_r, m_i, n_i, \mathbf{IP}_i)$ SSORTQ $(I_r, m_i, n_i, \mathbf{IP}_i)$ 18.1CALL 4.7CALL SSPGE $(n_i, \mathbf{ISPEC}_i, \mathbf{IA}_i, \mathbf{A}_r, \mathbf{B}_r, \mathbf{OPT}_r)$ 11.5R =SSQUAD $(korder_i, ncoef_i, TKNOTS_r, BCOEF_r, x1_r, x2_r)$ CALL SSTAT1 $(XTAB_r, nx_i, STATS_r, IHIST_i, ncells_i, x1_r, x2_r)$ 15.1CALL SSTAT2 $(STATS_r, IHIST_i, ncells_i, x1_r, x2_r)$ 15.1 $(korder_i, ncoef_i, TKNOTS_r, BCOEF_r, BDIF_r, npc_i, XI_r, PCOEF_r)$ 11.5CALL SSTOP 4.3CALL SSVA $(\mathbf{A}_r, lda_i, m_i, n_i, mdata_i, \mathbf{B}_r, \mathbf{SING}_r, KPVEC_i, NAMES_c, iscale_i, \mathbf{D}_r,$ $WORK_r$

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CHAPTER
                            CALL Statement
                       SSVAL
                                     (korder_i, ncoef_i, TKNOTS_r, BCOEF_r, x_r, ideriv_i)
              CALL SSVALA
                                     (korder_i, ncoef_i, TKNOTS_r, nderiv_i, BDIF_r, x_r, SVALUE_r)
             CALL SSVDRS
                                    (\mathbf{A}_r, lda_i, m_i, n_i, \mathbf{B}_r, ldb_i, nb_i, \mathbf{SING}_r, \mathbf{WORK}_r)
             CALL SSWAP
                                     (n_i, \mathbf{SX}_r, incx_i, \mathbf{SY}_r, incy_i)
             CALL SSYMQL (\mathbf{A}_r, lda_i, n_i, \mathbf{EVAL}_r, \mathbf{WORK}_r, \mathbf{ierr}_i)
             CALL STCST
      10.2
                                     (\mathbf{A}_r, tcs_c, mode_c, M_i, nd_i, \mathbf{ms}_i, \mathbf{S}_r)
      12.4 CALL STGFI
                                     (X_r, Y_r, Z_r, DZ_r, TRIANG_i, nt_i, B_i, mb_i, ncont_i, Q_r, \mathbf{zout}_r, wantdz_L,
                                     \mathbf{DZOUT}_r, \mathbf{mode}_i, \mathbf{SAVWRK}_r)
             CALL STGGRD (X_r, Y_r, np_i, \mathbf{IP}_i, \mathbf{W}_r, \mathbf{TRIANG}_i, mt_i, \mathbf{B}_i, mb_i, \mathbf{nt}_i, \mathbf{INFO}_i)
             CALL STGPD
                                     (X_r, Y_r, Z_r, \mathbf{DZ}_r, np_i, TRIANG_i, nt_i, \mathbf{IWORK}_i)
      12.4
             CALL STGPRG (X_r, Y_r, np_i, TRIANG_i, B_i, nb_i, nt_i)
             CALL STGREC (X_r, Y_r, Z_r, DZ_r, np_i, TRIANG_i, nt_i, B_i, nb_i, XYLIM_r, nx_i, ny_i, zfill_r,
                                     \mathbf{ZVALS}_r, mx_i, my_i, ncont_i, wantpd_L, \mathbf{DZVALS}_r)
      17.2 CALL SUACOS (U_r, \mathbf{Z}_r)
      17.2 CALL SUASIN
                                    (U_r, \mathbf{Z}_r)
      17.2 CALL SUATAN (U_r, \mathbf{Z}_r)
      17.2 CALL SUATN2
                                    (U_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUCOS
                                     (U_r, \mathbf{Z}_r)
      17.2 CALL SUCOSH (U_r, \mathbf{Z}_r)
      17.2 CALL SUDIF
                                     (U_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUDIF1
                                     (a_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUEXP
                                     (U_r, \mathbf{Z}_r)
      17.2 CALL \overline{\text{SUG}}ETN (\mathbf{n}_i, \mathbf{m1}_i, \mathbf{m2}_i, \mathbf{l1}_i, \mathbf{l2}_i)
      17.2 CALL SULOG
                                     (U_r, \mathbf{Z}_r)
      17.2 CALL \overline{\text{SUPRO}}
                                     (U_r, V_r, \mathbf{Z}_r)
      17.2 CALL \overline{\text{SUPRO}}1
                                    (a_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUPWRI (i_i, V_r, \mathbf{Z}_r)
      17.2 CALL SUQUO
                                     (U_r, V_r, \mathbf{Z}_r)
             CALL SUQUO1
                                    (a_r, V_r, \mathbf{Z}_r)
      17.2
                                    (\mathit{UT}_r,\,\mathbf{TU}_r,\,\mathit{ldim}_i,\,\mathbf{rcond}_r,\,\mathbf{IWORK}_i,\,\mathbf{WORK}_r)
      17.2 CALL SUREV
      17.2 CALL SUSET
                                     (val_r, key_i, \mathbf{U}_r)
      17.2 CALL SUSETN (n_i, m1_i, m2_i)
      17.2 CALL SUSIN
                                     (U_r, \mathbf{Z}_r)
      17.2 CALL SUSINH
                                    (U_r, \mathbf{Z}_r)
      17.2 CALL SUSQRT
                                    (U_r, \mathbf{Z}_r)
      17.2 CALL SUSUM
                                     (U_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUSUM1 (a_r, V_r, \mathbf{Z}_r)
      17.2 CALL SUTAN
                                    (U_r, \mathbf{Z}_r)
      17.2 CALL SUTANH (U_r, \mathbf{Z}_r)
             CALL SVECP
                                    (V_r, n_i, text_c)
       6.2 CALL SVECPR (\mathbf{V}_r, n_i, 'text' _c, lwidth<sub>i</sub>, lunit<sub>i</sub>, numdig<sub>i</sub>)
             CALL SWACOS (n_i, X_r, \mathbf{Z}_r)
             CALL SWASIN (n_i, X_r, \mathbf{Z}_r)
      17.1
             CALL SWATAN (n_i, X_r, \mathbf{Z}_r)
      17.1 CALL SWATN2 (n_i, X_r, Y_r, \mathbf{Z}_r)
             CALL SWCHN
                                    (n_i, X_r, \mathbf{F}_r)
             CALL SWCOS
                                    (n_i, X_r, \mathbf{Z}_r)
      17.1
             CALL \overline{\text{SWCOSH}}(n_i, X_r, \mathbf{Z}_r)
      17.1
      17.1 CALL SWDIF
                                     (n_i, X_r, Y_r, \mathbf{Z}_r)
      17.1 CALL SWDIF1
                                    (n_i, a_r, Y_r, \mathbf{Z}_r)
             CALL SWEXP
                                     (n_i, X_r, \mathbf{Z}_r)
      17.1
             CALL SWLOG
                                    (n_i, X_r, \mathbf{Z}_r)
                                    (n_i, X_r, Y_r, \mathbf{Z}_r)
      17.1 CALL SWPRO
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CHAPTER CALL Statement 17.1 CALL SWPRO1 $(n_i, a_r, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWPWRI $(n_i, i_i, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWQUO $(n_i, X_r, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWQUO1 $(n_i, a_r, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWRCHN (n_i, X_r, \mathbf{F}_r) 17.1 CALL SWSET $(n_i, val_r, deriv_r, \mathbf{W}_r)$ 17.1 CALL $\overline{\text{SWSIN}}$ (n_i, X_r, \mathbf{Z}_r) 17.1 CALL $\overline{\text{SWSINH}}$ (n_i, X_r, \mathbf{Z}_r) 17.1 CALL SWSQRT (n_i, X_r, \mathbf{Z}_r) $(n_i, X_r, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWSUM 17.1 CALL $\overline{\text{SWSUM}}1$ $(n_i, a_r, Y_r, \mathbf{Z}_r)$ 17.1 CALL SWTAN (n_i, X_r, \mathbf{Z}_r) 17.1 CALL SWTANH (n_i, X_r, \mathbf{Z}_r) 14.2 CALL $\overline{\text{SXRK8}}$ $(\mathbf{TS}_r, \mathbf{Y}_r, \mathbf{OPT}_r, \mathbf{IDAT}_i, \mathbf{DAT}_r, \mathbf{WORK}_r)$ $(\mathbf{TS}_r,\,\mathbf{Y}_r,\,F_r,\,\mathbf{IDAT}_i,\,\mathbf{DAT}_r,\,\mathbf{WORK}_r)$ 14.2 CALL SXRK8A 14.2 CALL SXRK8G $(\mathbf{TS}_r, \mathbf{Y}_r, \mathbf{F}_r, \mathbf{IDAT}_i)$ 8.1 CALL SZERO $(\mathbf{x}\mathbf{1}_r, \mathbf{f}\mathbf{1}_r, \mathbf{x}\mathbf{2}_r, \mathbf{f}\mathbf{2}_r, \mathbf{mode}_i, tol_r)$ 7.3 CALL $\overline{\text{ZCOEF}}$ $(ndeg_i, ROOTS_d, \mathbf{COEFS}_d)$ 17.3 CALL $\overline{\text{ZDIF}}$ $(A_d, B_d, \mathbf{RESULT}_d)$ 2.3 CALL ZGAM $(CARG_d, \mathbf{CVAL}_d, \mathbf{errest}_d, mode_i)$ 7.1 CALL $\overline{\text{ZPOLZ}}$ $(A_d, ndeg_i, \mathbf{Z}_d, \mathbf{H}_d, \mathbf{ierr}_i)$ 17.3 CALL $\overline{\text{ZPRO}}$ $(A_d, B_d, \mathbf{RESULT}_d)$ 17.3 CALL \overline{ZQUO} $(A_d, B_d, \mathbf{RESULT}_d)$ 17.3 CALL ZSQRTX (A_d, \mathbf{RESULT}_d) 17.3 CALL $\overline{\text{ZSUM}}$ $(A_d, B_d, \mathbf{RESULT}_d)$ 2.16 CALL \overline{ZWOFZ} $(Z_d, \mathbf{W}_d, \mathbf{iflag}_i)$

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