NA50

RELMIC USER'S GUIDE

Version 1.00/02

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This document refers to the NA50 program for microDST reading RELMIC, version 2.00/06

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Contents

Chapter 1

INTRODUCTION

1.1 Public disks or directories

The official NA50 files needed for the microDST treatment program RELMIC are :

- On IBM, at FRCPN11, under userid NA50SERV, disk 191. They are the following (fn ft):

Filename	**Filemode**	**Description**
RELMIC	CAR	: RELMIC Pam-file
NA50UTIL	CAR	: NA50UTIL Car-file
LIBNA50	TXTLIB	: NA50 Library
PARAMS	NA50	: Parameter file
CONSTADC	NA50	: Hardware file
RELMIC	LATEX or PS	: This documentation

- On UNIX :
  - On cernsp, under directory $GROUP_DIR/na50, alias /afs/cern.ch/home/throng/group/wf/na50.
  - On Basta, under directory $GROUP_DIR/na50, alias /home/na50/na50.
  - On Anastasie, under directory $THRONG_DIR/na50, alias /afs/in2p3.fr/home/throng/na50/na50.

  They are the following (fn ft):

Filename	**Description**
relmic.car	: RELMIC Car-file
na50util.car	: NA50UTIL Car-file
libna50_hp.a	: NA50 Library under HP
libna50_rs.a	: NA50 Library under AIX
params.na50	: Parameter file
constadc.na50	: Hardware file
relmic.latex	: This documentation (subdirectory manuals)

1.2 DIMU Exec

RELMIC is easily sent to batch (or run interactively) with dimu Exec (**dimu rec**). For more information about DIMU Exec, see NA50 FRIEND'S GUIDE or type HELP NA38 DIMU (IBM) or xhelp (Unix). You can also hit the PF1 key once you have accessed the DIMU panels.

1.3 LIBNA50 library

LIBNA50 library is on the public disk (see NA50 FRIEND'S GUIDE). It contains routines used by several NA50 programs.

In particular, it allows the reading and the decoding of the geometrical (PARAMS NA50) and hardware (CONSTADC NA50) parameters, and fills the corresponding commons (see NA50 FRIEND'S GUIDE).

1.4 NA50UTIL CAR

RELMIC CAR needs the call of another CAR file, named NA50UTIL, in which are defined some commons and quantities involved in the different NA50 programs (see NA50 FRIEND'S GUIDE).

1.5 CRADLE

The miminum cradle to run RELMIC is :

```
+PATCH,INSTAL,T=DATA.
+USE,NA50CDKS,NA50BLDA.
+USE,*system.
+USE,*NORMAL.
+EXE.
+PAM,11,T=C.
+PAM,12,T=C.
+QUIT.
```

where system can be IBM, VAX or UNIX.

On Unix, the two +PAM cards must be written as :

```
+PAM,11,t=c,a. (util)
+PAM,12,t=c,a. (thecar)
```

Chapter 2

DESCRIPTION OF THE RELMIC CAR FILE

2.1 Patchs and Decks

P = STORY	1	
P = INSTAL	2	
P = *IBM	3	
P = *UNIX	4	
P = *VAX	5	
P = *NORMAL	6	
P = *LASTMOD	7	
P = COMDECKS	8	
P = DESCRIBE	9	
	10	D = ROUTIN
	11	D = COMCOM
	12	D = COUNTS
P = RELMIC	13	
	14	D = RELMIC
	15	D = BLKMIC
	16	D = ADCCOR
	17	D = BEGRUN
	18	D = CALZDC
	19	D = DBEVT
	20	D = DECODE
	21	D = FINISH
	22	D = HISBUK
	23	D = HISFIL
	24	D = HISGLO
	25	D = HVOLTG
	26	D = INIT
	27	D = OUTGLO
	28	D = PILEUP
	29	D = PLOMOI
	30	D = PLOTCC
	31	D = PROCES
	32	D = PUBEAM
	33	D = PUCALO
	34	D = PUCARF

	35	D = PUTDC
	36	D = PU2TDC
	37	D = PUPZDC
	38	D = READCD
	39	D = READEV
	40	D = SCAMOI
	41	D = SETGEO
	42	D = TGTCTR
	43	D = USER
	44	D = WRIMIC
P = INDEX	45	

2.2 History

Start from RELMIC PAM, version 1.00/04, last update 01/07/93
Define pilot patches *IBM, *VAX and *UNIX.
Suppresses old NA38 set-up dependent features (NVERSM.LT.9)
Includes *LASTMOD and RELMI9 CRADLE to run with S-U 92 data
Uses comdecks and data defined in NA50UTIL CAR
Fortran to be created with a cradle including NA50UTIL,
and where the system (*IBM, *VAX or *UNIX) has to be defined
(cf Patch,INSTAL, below)
Defines block sizes in NA50UTIL and PARAMS files
Includes a patch DESCRIBE for program descriptions
Includes an option TESTGLO for the study of the global cuts
Rewrite WRIMIC routine to write only accepted events
Simplifies the handling of the periods
Includes the same routine RDADCC as in DIMUREC
Release 2.00/02 (95/06/26)
Makes some corrections in subroutine WRIMIC
Includes subroutines PUBEAM, PUCALO and PILEUP
Deletes subroutine RDADCC, now in LIBNA50
Release 2.00/03 (96/01/09)
Modifications in DECODE and READEV (format changed version 2)
Change TGTCTR, according to DIMUREC version 3
Add subroutine DBEVT
Release 2.00/04 (96/02/02)
Modifications to read any additional microDST
Change format of additional for global cut
Release 2.00/05 (96/05/03)
Add selection on ZDC trigger, C.S. cos(teta)
Modify counters and their printouts, ZDC range
Modify WRIMIC for compatibility with new format (NVERSM > 1)
Change CUTIM into CUTGLO(2), see READCD
Includes temporary modification for calo radiation damage
Release 2.00/06 (96/10/01)
Includes final modification for calo radiation damage 95

Reintroduces RNGCOR instead of ETOTRC in NVERSM = 4
Change CUTIMA into CUTFID(2) to cut on fiducials,
direct and image, see READCD
Modify dphi cut precision
Modify NZCIBL definition (see COMCOM and/or READCD)

Chapter 3

DESCRIPTION OF THE PROGRAM

PROGRAM RELMIC

MICRODST DECODING PROGRAM FOR THE NA50 EXPERIMENT

This program reads microDST's, either standard or additional, selects events (according to criteria given by command cards), stores histograms and writes an output microDST if needed.
The program is steered by command cards (see subr. READCD)

Logical units :	LFIN	= input = command cards (1)
	LFTAPS	= input/output information (20)
	LFOUT	= output (2)
	LFHIST	= histogram file (3)
	LFNTUP	= ntuple file (13)
	LFTIM	= execution time output (4)
	LFPAR	= parameter file (7)
	LFSEL	= RUNNORMA DATA (9)
	LFCONS	= ADC constant file (21)
	LFTMS	= information for tape-management (11)
	LFTIN	= microdst(s) to be read (41,42,...)
	LFTOUT	= microdst(s) to be written (51,52,...)

The reference frame is right-handed,with the z-axis along the beam direction.
Units are :

energy, momentum, mass : GeV, GeV/c, GeV/c^2
length : cm
angle : radian (or locally degree)

BLOCK DATA BLKMIC

Initialises constants of general use : - logical units and parameters of input/output files - flags - default values - event counters - information for file I/O - event counters

SUBROUTINE ADCCOR

Corrects calorimeter ADC's with their calibration coefficients.

SUBROUTINE BEGRUN

Reads beginning of run block, makes a run per run initialisation (called by PROCES)

SUBROUTINE DBEVT

Debug print-out of selected events (called by DECODE).

SUBROUTINE DECODE (JCUR,LBL)

Decodes the data of the standard microDST (called by PROCES).

SUBROUTINE FINISH

Terminates the job, closes logical files, makes print-outs, histograma and plots (called by RELMIC).

SUBROUTINE HISBUK

Books histograms (called by BEGRUN).

SUBROUTINE HISFIL

Fills histograms (called by PROCES).

SUBROUTINE HISGLO (IGO)

Fills histograms for geometrical cuts (called by DECODE)

SUBROUTINE HVOLTG

Reads high voltages for new (NA38) detectors and prints them. (called by READEV)

SUBROUTINE INIT

Initalises program and files (called by RELMIC).

SUBROUTINE PILEUP

Builds FPILUP from PUBEAM and PUCALO information (called by DECODE)

SUBROUTINE PLOMOI (ID1,ID2,ID3,ID5,ID6,ID4,IPR,NBINS)

Creates histograms of signal events, with background subtraction (called by PLOTCC).

SUBROUTINE PLOTCC

Prints-out and stores histograms (called by FINISH).

SUBROUTINE PROCES

Processes accepted events (called by RELMIC).

SUBROUTINE PUBEAM

Computes beam pile-up variables (called by DECODE)

SUBROUTINE PUCALO

Computes interaction pile-up variables (called by DECODE)

SUBROUTINE PUCARF

Helps to compute interaction pile-up variables (called by PUCALO)

SUBROUTINE PUTDC

Helps to compute interaction pile-up variables (called by PUCALO)

SUBROUTINE PU2TDC

Helps to compute interaction pile-up variables (called by PUCARF)

SUBROUTINE READCD

Called by INIT, reads the command cards in format A3, A7, 7F10.3.
A second card (in the same format) may follow, if the number of parameters is bigger than 7.
The cards can appear in any order, except for the last one, which must be 'END'.
Only the first three letters of the keyword are checked.
Cards beginning with "COM" are merely written and not taken into account. They allow the user to keep comments in his command cards file.
Command cards are the following :

ADD - asks for the reading of additional microDST(s)
1st parameter : number of additional microDST's to read

COM - comment card (may be put anywhere and several times)

CUT - defines cuts and selections (no selection if value = 0)
1st parameter : selects sign of magnetic field (SELFLF)
2nd parameter : selects value of magnetic field (SELFLD)
3rd parameter : cut on NOHALO, NOCIBI, NOCIBR
(bits 1, 2, 3 respectively)
If heavy target, selects Z of target
1000 selects empty target
4th parameter : target efficiency correction requested

5th parameter : cut on pileup (NIBHAD,NPARAS,NICALO)
(bits 1, 2, 3 respectively)
6th parameter : selection on tracks
bit 1 : fiducial direct,
bit 2 : fiducial image,
bit 3 : global direct,
bit 4 : global image
7th parameter : >0 rejection of ZDC triggers
<0 selection of ZDC triggers

CU2 - other cuts and selections :
1st parameter : low Et cut
2nd parameter : high Et cut
3rd parameter : low mass cut
4th parameter : high mass cut
5th parameter : low Pt cut
6th parameter : high Pt cut
7th parameter : existence of a continuation card
8th parameter : low xf cut (on continuation card)
9th parameter : high xf cut (idem)
10th parameter : low y cut (idem)
11th parameter : high y cut (idem)
12th parameter : low cos(teta) cut (idem)
13th parameter : high cos(teta) cut (idem)

DEB - debug print-outs :
1st parameter : 1st event to print-out
2nd parameter : last event to print-out
3rd parameter : more detailed debug (logical records)

DIM - 2 dimensional (M, Pt) histogramming requested

ETB - defines Et slices :
1st parameter : number of slices (NTRETR, max = 12)
2nd parameter : high Et value of the 1st slice
nth parameter : low Et value of the last slice
(n = NTRETR + 1)

GLO - geometrical cut requested
1st parameter : cut on prob (Dtarg)
2nd parameter : cut on prob (Dmag)
3me parameter : cut on prob (Dphi)
4th parameter : cut on prob (GLOBAL)

HIS - steering of histograms :
1st parameter : raw variables
2nd parameter : Et for different mass bins
3rd parameter : M (or M,Pt) per Et slices

4th parameter : Et per Et slices
5th parameter : CV and DV tracks
7th parameter : NTUPLE requested

HST - choice of histograms to store :
1st parameter : 1st id to store (if 0, all stored)
2nd parameter : last id to store (first set)
3rd parameter : 1st id to store (second set)
4th parameter : last id to store (second set)

PRO - events to process :
1st parameter : first event to process (incremental)
2nd parameter : last event to process (incremental)
3rd parameter : first event to process (trigger number)
4th parameter : last event to process (trigger number)

PRT - other requests :
1st parameter : run per run print-out requested
2nd parameter : ADC constant print-out requested
3rd parameter : geom. params print-out requested
4th parameter : read events without processing

RLI - requests run selection with RUNNORMA DATA or run list
1st parameter : selection value on CNORM(9)
-1 = no selection nor normalisation
0. = no selection but normalisation
1. = large sel., 2. = strict sel.
2nd parameter : flag of run list following

RUN - run limits :
1st parameter : 1st run to process
2nd parameter : last run to process

WRI - write-out requested :
1st parameter : write standard microDST
ith parameter : write additional microDST of type i-1.

END - last command card (mandatory)

SUBROUTINE READEV (IGO,IMIC)

Reads an additional microDST (called by PROCES and DECODE).

SUBROUTINE SCAMOI (ID1,ID2,ID5,ID6,ID7,ID3,ID4,IPR,NBIN1,NBIN2)

Creates histograms of signal events, with background subtraction :

Same as PLOMOI for two-dimensional histograms (called by PLOTCC).

SUBROUTINE SETGEO

Routine to modify parameters read in parameter file (called by BEGRUN)

SUBROUTINE USER (IGO)

User routine (called by INIT, BEGRUN, PROCES and FINISH with IGO = 1, 2,3,4 respectively).

SUBROUTINE WRIMIC (IGO)

Write microDST (called by BEGRUN and PROCES).

Chapter 4

DESCRIPTION OF ALL VARIABLES

SUBROUTINE COMCOM

PARAMETERS OF THE LAB-CMS LAB TRANSFORMATION

```
COMMON /BEAMT/ PBEAM,CDM(4),BETA,GAMMA,YCM,SQRTS
```

PBEAM	beam momentum
CDM	quadrivector of nucleon-nucleon center of mass
BETA	beta of the lab-cms Lorentz transformation
GAMMA	gamma of the Lorentz transformation
YCM	lab rapidity
SQRTS	total energy of the nucleon-nucleon collision

COUNTERS

```
PARAMETER (MCOUNT = 60)
COMMON /COUNTS/ NCOUNT(MCOUNT)
```

MCOUNT	number of counters
NCOUNT	counters

CUTS USED TO BUILD THE MICRODST

```
COMMON /CUTALP/ CUTBIT(16)
CHARACTER*35 CUTBIT
```

CUTBIT	cuts used at creation time

VARIABLES OF EVENT

```
      PARAMETER (NZEREV = 104)
      COMMON /EVENT/ IEVENT,NBST,DIMASS,RAPID,PTDIM,COSTCS,PHICS,ZVERT
     1  ,IFLAGS,PL1,PL2,PT1,PT2,FPILUP,IEVTIM,ITCOUN,ITRZDC
     2  ,PX1,PY1,PZ1,PX2,PY2,PZ2,YMUMU,XFDIM,Y1,Y2,NBDIMS
     3  ,NOCIBI,NVSEL,IOSLS,NOCIBR,ISBIN,ISBIN1,ISBIN2
     4  ,NSEXT1,NSEXT2,ISYNFL,NOJITR,SOJITR,ZOJITR,NIBHAD,NIBHTD
     5  ,NPARAS,NICALO,CUT(2,3,2),VARCUT(2,5,2),ZDCPUP
```

```
6   ,XTRSP(2,3,2),ATRSP(2,2,2),PTRSP(2),NOHALO
7   ,MDMUL1,MDMUL2,MDNSC1,MDNSC2
 INTEGER FPILUP,SOJITR,ZOJITR,ZDCPUP
 LOGICAL NOHALO
```

IEVENT	event number (read on microDST)
NZEREV	number of variables in the common
NBST	existence of dimuon (0 or 1)
DIMASS	dimuon mass
RAPID	dimuon rapidity in c.m.s.
PTDIM	dimuon transverse momentum
COSTCS	dimuon (C.S.) cos (teta)
PHICS	dimuon (C.S.) phi
ZVERT	z vertex du dimuon
IFLAGS	cf description of the microdst
PL1	Pl of the first muon
PL2	Pl of the second muon
PT1	Pt of the first muon
PT2	Pt of the second muon
FPILUP	pileup word
IEVTIM	event time in burst
ITCOUN	trigger bits of the event
PX1	Px of the first muon
PY1	Py of the first muon
PZ1	Pz of the first muon
PX2	Px of the second muon
PY2	Py of the second muon
PZ2	Pz of the second muon
YMUMU	dimuon lab rapidity
XFDIM	xf of dimuon
Y1	y of the first muon
Y2	y of the second muon
NOCIBI	number of the hit subtarget
NOCIBR	reinteraction in the target
NVSEL	bits of dimuon quality (direct and image)
IOSLS	+-, ++ or –
NOHALO	flag of no beam in target halo counters
IOSLS	1 = +-, 2 = ++, 3 = –
ISBIN1,2	Pt superbin of track 1, 2
NSEXT1,2	sextant number of track 1, 2
ISYNFL	flag of two synchrone muons
NOJITR	trigger without jitter
SOJITR	trigger with SOS jitter
ZOJITR	trigger with zero jitter
NIBHAD	number of ions in BH ADC
NIBHTD	number of ions in BH TDC
NPARAS	number of ions in BH interaction plane
NICALO	flag of interaction pileup in em calo (1 = no pu)

ZDCPUP	flag of pileup in ZDC (0 = no pu)
CUT	geometrical cut variables
VARCUT	geometrical cut variables

TRANSVERSE ENERGY SLICES

```
      PARAMETER (MTRETR=14)
      COMMON /ETCUT/ ECUTSO(7),ECUTPB(7),ECUTPR(5),ECUTDA(MTRETR)
     1  ,EC(MTRETR+1),NTRETR,NTRM1
```

MTRETR	maximum number of slices
ECUTSO	Et slices for S-U
ECUTPR	Et slices for p-U
ECUTPB	Et slices for Pb-Pb
ECUTDA	Et slices given by command card
EC	Et slices
NTRETR	number of slices
NTRM1	NTRETR - 1

PROGRAM STEERING FLAGS

```
      COMMON /FLAGS/ NVERSR,NVERSA,NEVENT,DEBFL(3),IDEBI,IDEBF,NPAT
     1  ,NDEBI,NDEBF,EXITFL,FLPRT(3),ETRGA,HISTOS,NTUPLE,WRIRUN
     2  ,TIMOUT,CLOSED,LSTRUN,ISTO(7),ISTOR(4),ACCEPT,ACCEPI,WAITNG
     3  ,SHORT,NFEVE,NLEVE,IFEVE,ILEVE,PATHO,OLDTRI,IFAIL
      LOGICAL EXITFL,FLPRT,DEBFL,ETRGA,HISTOS,NTUPLE,WAITNG
     1  ,WRIRUN,TIMOUT,CLOSED,LSTRUN,ACCEPT,ACCEPI,SHORT,PATHO
      CHARACTER*8 NVERSA
      INTEGER OLDTRI
      PARAMETER (NWNTUP = 4)
      COMMON /NTUPL/ IDNTUP,VARNTU(NWNTUP),TAGNTU(NWNTUP),TITNTU
      CHARACTER TAGNTU*8,TITNTU*20
```

NVERSR	Pam version date
NVERSA	Pam version number
NEVENT	event number (incremental)
DEBFL(1)	standard debug requested
DEBFL(2)	flag of active debug
DEBFL(3)	detailed debug requested
IDEBI	first event (IEVENT) for debugging
IDEBF	last event (IEVENT) for debugging
PATHO	definition of pathological event for debugging
NPAT	maximum number of pathological events to debug
NDEBI	first event (NEVENT) for debugging
NDEBF	last event (NEVENT) for debugging
EXITFL	end of program flag
FLPRT(1)	run per run print-out requested
FLPRT(2)	ADC constant print-out requested

FLPRT(3)	geometry print-out requested
ETRGA	dE/deta calculation requested
HISTOS	histograms requested
NTUPLE	flag to create ntuple
IDNTUP	id of (first) ntuple
TAGNTU	title of ntuple
TITNTU	file identificator of histogram file
ISTO	selection of histograms
ISTOR	selection of histograms to hstore (from ISTOR(1) to ISTOR(2) and from (3) to (4))
TIMOUT	time running short flag
CLOSED	end of input tape flag
LSTRUN	last encountered run flag
WRIRUN	flag to write all runs, even rejected
ACCEPT	accepted event flag (before image cut)
ACCEPI	accepted event flag (after image cut)
WAITNG	flag of READEV waiting for standard event
IFAIL	rejection index in DECODE
SHORT	quick reading requested (no decoding)
NFEVE	first event number to process (incremental)
NLEVE	last event number to process
IFEVE	first event number to process (triger number)
ILEVE	last event number to process

INFORMATION FOR HISTOGRAMS

```
COMMON /BOOK/ NBINM,NBINP,XMI,XMA,YMI,YMA,NET,NETT
COMMON /FILLS/ AFILL0(15),AFILL7(5),BFILL0(10)
```

NBINM	number of mass bins
NBINP	number of Pt bins (if TWODIM)
XMI	x min of M,Pt histograms
XMA	x max of M,Pt histograms
YMI	y min of M,Pt histograms
YMA	y max of M,Pt histograms
NET	number of Et bins
NETT	number of Et bins per Et slice
AFILL0	variables to HPAK
AFILL7	variables to HPAK
BFILL0	variables to HPAK

DEFINITION OF LOGICAL UNITS AND EPIO VARIABLES

```
 COMMON /LFILE/ LFIN,LFOUT,LFTERM,LFPAR,LFCONS,LFHIST,LFTIM,LFTMS
1  ,LFNTUP
 COMMON /INFTAP/ NTAPI,NTAPO,IFSEQ(8),LFSEQ(8),CHAIN(8),MULTIF(8)
1  ,CCPN,NCHAIN(8),COMAND,FNTAPI(8),FTTAPI(8),FMTAPI(8),LABELD(8)
2  ,FNTAPO(9),FTTAPO(9)
```

```
      CHARACTER FMTAPI*2,FNTAPI*8,FTTAPI*8,COMAND*80,FNTAPO*8,FTTAPO*8
      LOGICAL CHAIN,CCPN,LABELD,MULTIF
      COMMON /INFADD/ FNHIST,JOBID,USSER
      CHARACTER*12 FNHIST,JOBID,USSER
      PARAMETER (MINFCO = 6)
      COMMON /IOBLKS/ IDCONT(9),IDPUSC(9),IDOFFL(9),IDBTGT,IDMUK
     1  ,IDHODS,IDWCHS,IDCCH,IDRAW,IDTRAK,IDBEAM,IDCUT
     2  ,IDKUR,IDWGHT,IDBKG,IDBGEO(30),IDMICR(5),IDCONS(MINFCO)
      EQUIVALENCE (IDCONT(1),IDBRUN),(IDCONT(2),IDERUN)
      EQUIVALENCE (IDCONT(3),IDBBUR),(IDCONT(4),IDEBUR)
      EQUIVALENCE (IDCONT(5),IDBEV ),(IDCONT(6),IDEEV )
      EQUIVALENCE (IDCONT(7),IDPUBH),(IDCONT(8),IDHVOL)
      EQUIVALENCE (IDCONT(9),IDCORN)
      EQUIVALENCE (IDPUSC(1),IDSCAL),(IDPUSC(2),IDSCAT)
      EQUIVALENCE (IDPUSC(3),IDSCNA),(IDPUSC(4),IDSCNS)
      EQUIVALENCE (IDPUSC(5),IDCABA),(IDPUSC(6),IDCABS)
      EQUIVALENCE (IDPUSC(7),IDLASE),(IDPUSC(8),IDLASR)
      EQUIVALENCE (IDPUSC(9),IDGANI)
      EQUIVALENCE (IDOFFL(1),IDASSP),(IDOFFL(2),IDTRSP)
      EQUIVALENCE (IDOFFL(3),IDTRPR),(IDOFFL(4),IDTRPM)
      EQUIVALENCE (IDOFFL(5),IDKINE),(IDOFFL(6),IDSCIN)
      EQUIVALENCE (IDOFFL(7),IDCHIT),(IDOFFL(8),IDDST)
      EQUIVALENCE (IDOFFL(9),IDDST2)
      EQUIVALENCE (IDMICR(3),IDMIEV)
      EQUIVALENCE (IDCONS(1),IDCALC),(IDCONS(2),IDPEDC)
      EQUIVALENCE (IDCONS(3),IDTHRC),(IDCONS(4),IDHVC)
      EQUIVALENCE (IDCONS(5),IDTGTR),(IDCONS(6),IDMULC)
      COMMON /CONNAM/ NINFCO,INFORS(MINFCO),ABREV(MINFCO)
      CHARACTER INFORS*12, ABREV*1
      COMMON /IOINFS/ MSIGN,MMAX,LRCIN,LRCPAR,LRCOUT,LRCONS
      COMMON /MICP01/ JC1,JC2,JC3,JC4,JC5,JC6,JC7,JC8,JC9,JC10,
     1  JC11,JC12,JC13,JC14,JC15,JC16,JC17,JC18,JC19,JC20,JC21,
     2  JC22,JC23,JC24,JC25
      COMMON /MICP02/ NWVER(4),JCSTAN(25,4),JCSIMU(20,4)
      DIMENSION JCC(25)
      EQUIVALENCE (JC1,JCC(1))
      PARAMETER (NINFRX=1000)
      COMMON /RXXINF/ INFRXI,RXINFI(NINFRX)
      CHARACTER RXINFI*80
      PARAMETER (MXLUIN = 7, MXLUOU = 7)
      COMMON /LFILES/ LFTAPS,LFTIN(MXLUIN),LFSEL
     1  ,LFTOUT(MXLUOU),LFEPER,NMIC,NMICO
     2  ,NFILE(MXLUIN),MICTYP(MXLUIN),NWMICO(MXLUOU),TAPOUT(MXLUOU)
      COMMON /RXFNFT/ DAYFIL
      CHARACTER*20 DAYFIL
      PARAMETER (IWSMAX = 3000)
      COMMON /EPIO/ JWS(IWSMAX,MXLUIN),IBUF(8190,MXLUIN)
     1  ,LWS(IWSMAX,MXLUOU),LBUF(8190,MXLUOU)
```

```
      DIMENSION IWS(IWSMAX)
      EQUIVALENCE (JWS(1,1),IWS)
      COMMON /READIN/ NWMIC(MXLUIN)
```

MXLUIN	maximum number of input logical units
MXLUOU	maximum number of output logical units
LFIN	logical unit of command cards
LFTAPS	logical unit of input/output information
LFOUT	logical unit of output file
LFTIN	logical unit of input tape(s)
LFPAR	logical unit of parameter file
LFCONS	logical unit of ADC constant file
LFSEL	logical unit of RUNNORMA DATA
LFEPER	logical unit for EPIO errors
LFTOUT	logical unit of output tape(s)
LFNTUP	logical unit for ntuple(s)
LFHIST	logical unit of histogram file
LFTIM	logical file for execution time
LFTMS	logical file for Tape Management System
IWSMAX	maximum size of the logical records
JWS	input variables
IBUF	input buffer
LWS	output variables
LBUF	output buffer
NFILE	number of read files
NWMIC	number of words per event on a given microDST
NMIC	number of microDST's (¿ 1 if additional)
NMICO	number of output microDST's (¿ 1 if additional)
NWMICO	number of words in microDST of type I
TAPOUT	creation of output microDST requested
MICTYP	microDST type
DAYFIL	fn ft of read file (IBM only)

INFORMATIONS FROM STANDARD MICRODST BEGINNING OF JOB

```
      COMMON /MICRO/ SIMUFL,GLOCUT(4)
     1  ,ICUTS,NVERSM,NVERSP,MICGLO,MICTGT,MICCAL,MICZDC,MICBH,MICTRK
     2  ,ADAMIC(6)
      LOGICAL SIMUFL
      CHARACTER ADAMIC*8
```

SIMUFL	flag of simulated microDST
GLOCUT	used global cuts at creation time
ICUTS	cut values at creation time
NVERSM	microDST version number
NVERSP	DIMUREC version number at creation time
MICCAL	number of the calorimeter additional microDST

MICTGT	number of the target additional microDST
MICGLO	number of the additional microDST for global cuts
MICZDC	number of the additional microdst for ZDC
MICBH	number of the additional microdst for BH

PEDESTAL AND CALIBRATION VARIABLES

```
      PARAMETER (NZERDA = 203)
      COMMON /NA50DA/ CALADC(4,6),EARADC(16),NORLAS,DIOLAS,FILTRL
     1  ,BINADC(4),ZDCADC(48),ZDCTDC(16),TGTADC(24)
     2  ,BHLADC(8),BHRADC(8),BHBADC(6),BHTADC(6),BHIADC(6)
     3  ,BHLTDC(8),BHRTDC(8),BHBTDC(6),BHTTDC(6),BHITDC(6)
      INTEGER EARADC,CALADC,ZDCADC,ZDCTDC,BINADC,TGTADC,FILTRL,DIOLAS
      INTEGER BHLADC,BHBADC,BHRADC,BHTADC,BHIADC
      INTEGER BHLTDC,BHRTDC,BHBTDC,BHTTDC,BHITDC
      PARAMETER (NZERCO = 198)
      COMMON /NA50CO/ CALCOR(4,6),EARCOR(16),ZDCCOR(48),TGTCOR(24)
     1  ,RNGCOR(4),BINCOR(4),BHLCOR(8),BHRCOR(8),BHBCOR(6),BHTCOR(6)
     3  ,BHICOR(6),BHLTCO(8),BHRTCO(8),BHTTCO(6),BHBTCO(6),BHITCO(6)
```

CALPED	calorimeter pedestals
TGTPED	target pedestals
CALCAL	calibration coefficients for calorimeter
CALADC	raw calo ADC
TGTADC	ADC of the target scintillators

RUN INFORMATION

```
      COMMON /RUN/ CNORM(9),NZHTAR,FIELD,ALUMI,NRUN,NSETUP
     1  ,IFRUN,REJECR,NBRUNS,ALUMT,ARGO,NOSLS(3),LEVRUN,NLUMI0
      LOGICAL REJECR,ARGO
```

CNORM	normalisation values (cf RUNNORMA)
NZHTAR	atomic number of the target
FIELD	magnetic field
ALUMI	free luminosity = .5*(BH1+BH2) free
ALUMT	trigger gated luminosity = ALUMI*livetime
NRUN	run number
NSETUP	setup number
IFRUN	first accepted run number
REJECR	flag of rejected run
NOSLS	number of +-, ++ and -- per run
LEVRUN	last event number in run
ARGO	flag of proton beam with argonium
NLUMI0	number of runs with null luminosity

SELECTION FLAGS

```
      COMMON /SELECT/SELFLD,SELFLF,CUHALO,CUCIBI,CUCIBR,PUCUT,PILUCU
     1  ,ZDCCUT,ZDCSEL,ETRLOW,ETRHIG,SELRUN,RUNSEL,IFIRUN,LASRUN,NZCIBL
     2  ,PRBCUT(4),NOCIUN,NOCIOV,LISTRN,CUTFID(2),CUTGLO(2),CORCIB
      LOGICAL CUHALO,CUCIBI,CUCIBR,PUCUT,ZDCCUT,ZDCSEL,SELRUN,LISTRN
      INTEGER PILUCU
      COMMON /RCUTS/ TWODIM,DMCUT,PTCUT,XFCUT,YCUT,CTCUT
     1  ,RMCUT1,RMCUT2,RPCUT1,RPCUT2
     2  ,RXCUT1,RXCUT2,RYCUT1,RYCUT2,CTCUT1,CTCUT2
      COMMON /OLCUTS/ CUTMAH,CUTMAT
      LOGICAL TWODIM,DMCUT,PTCUT,XFCUT,YCUT,CUTFID,CUTGLO,CORCIB,CTCUT
```

SELFLD	requested selection on value of magnetic field
SELFLF	requested selection on sign of magnetic field
NZCIBL	selection on target :
	If NZCIBL < 1000 and active target :
CUHALO	requested selection on NOHALO (NZCIBL, bit 1)
CUCIBI	requested selection on NOCIBI (NZCIBL, bit 2)
CUCIBR	requested selection on NOCIBR (NZCIBL, bit 3)
	If NZCIBL = 1000 selection of empty target runs
	If heavy target, selection of the target Z
NOCIUN	value before the first selected subtarget
NOCIOV	value after the last selected subtarget
PUCUT	requested selection on pileup
ZDCCUT	requested rejection of ZDC triggers
ZDCSEL	requested selection of ZDC triggers
PILUCU	rejection type on pileup (NIBHAD,NPARAS,NICALO)
ETRLOW	low Et cut
ETRHIG	high Et cut
SELRUN	requested selection on RUNNORMA
RUNSEL	value of selection on CNORM(9) from RUNNORMA
LISTRN	requested selection of runs using list
IFIRUN	first run to process
LASRUN	last run to process
TWODIM	two dimensional histograms (M,Pt) for bkg subtr.
DMCUT	flag of mass cut requested
PTCUT	flag of Pt cut requested
XFCUT	flag of xf cut requested
YCUT	flag of y cut requested
CTCUT	flag of cut in C.S. teta requested
CUTFID	flag of fiducial cut requested (direct,image)
CUTGLO	flag of global cut requested (direct,image)
CORCIB	flag of target correction requested
RMCUT1	low mass cut
RMCUT2	high mass cut
RPCUT1	low Pt cut
RPCUT2	high Pt cut
RXCUT1	low xf cut

RXCUT2	high xf cut
RYCUT1	low y cut
RYCUT2	high y cut
CTCUT1	low cos(teta) C.S. cut
CTCUT2	high cos(teta) C.S. cut

SIMULATION VARIABLES

```
COMMON /SIMUL/ DMMC,XFMC,PTMC,PHCMMC,PHCSMC,CTCSMC,ETOTMC
```

DMMC	simulated mass of dimuon
XFMC	simulated xf of dimuon
PTMC	simulated Pt of dimuon
PHCMMC	simulated phi of dimuon
CTCSMC	simulated cos(teta) Collin-Soper of dimuon
ETOTMC	total nucleon-nucleon energy of the collision

GLOBAL CUTS

```
     COMMON /TSTGLO/ PA,PS,NN,ITCVDV,D1,D2,DMAGX,DMAGY,DPHI,PROCUT(4)
    1  ,GLOBAL,ACCFL(2,2),ACCDIR,ACCIMA
     LOGICAL ACCFL,ACCDIR,ACCIMA
```

PA	momentum of the studied track
PS	momentum*charge of the studied track
NN	number of the studied track
ITCVDV	convergent-divergent, direct or image flag
D1	DTARG X of the studied track
D2	DTARG y of the studied track
DMAGX	DMAG x of the studied track
DMAGY	DMAG y of the studied track
DPHI	DPHI of the studied track
PROCUT	χ^2 probability of each cut
GLOBAL	Quadratic sum of the three cuts
ACCFL	Flag for global accepted (track,direct or image)
ACCDIR	Flag of an accepted direct track
ACCIMA	Flag of an accepted image track

ZDC VARIABLES

```
PARAMETER (CENEX = 0.46,NZERZD=7)
COMMON /ZDCVAR/ SUMZDC,CENTR(2),CENNOR,NIZDC,DIFTI(2)
```

SUMZDC	total deposited charge in the ZDC's ADCs
CENTR	coordinates of the centroid of deposited energy
CENNOR	sum of weigths for determination of the centroid
NIZDC	number of ions seen by delayed ZDC
CENEX	exponent used to determinate centroid of energy

Chapter 5

DESCRIPTION OF THE PROGRAM COUNTERS

1	number of read events	DECODE
2	number of events after NOHALO cut	DECODE
3	number of events after NOCIBI cut	DECODE
4	number of events after NOCIBR cut	DECODE
5	number of events after pile-up cut	DECODE
6	number of events after ETOTRC cut	DECODE
7	number of accepted events	DECODE
8	number of events after image cut	DECODE
9	number of events after direct global cut	DECODE
10	number of events with ZDC trigger	DECODE
11	number of events with ZDC trigger and BH pileup	DECODE
12	number of events with ZDC trigger and parasite	DECODE
13	number of events with ZDC trigger and halo	DECODE
14	number of events after mass cut	DECODE
15	number of events with more than one dimuon	DECODE
17	number of events after Pt cut	DECODE
18	number of events after xf or y cut	DECODE
19	number of events after direct NVSEL cut	DECODE
39	number of events after C.S. cos teta cut	DECODE
38	number of events with one dimuon	DECODE
20	number of opposite sign, all masses, no selection	DECODE
21	number of like sign, all masses, no selection	DECODE
22	number of opposite sign, $M > 1.7$, out psi, no selection	DECODE
23	number of like sign, $M > 1.7$, out psi, no selection	DECODE
24	number of opposite sign, $M > 1.7$, out psi, after upstrea	DECODE
25	number of like sign, $M > 1.7$, out psi, after upstream	DECODE
26	number of opposite sign, $2.7 < M < 3.5$, after upstream	DECODE
27	number of like sign, $2.7 < M < 3.5$, after upstream cuts	DECODE
28	number of opposite sign, $M > 1.7$, out psi, after global	DECODE
29	number of like sign, $M > 1.7$, out psi, after global cut	DECODE
30	number of opposite sign, $2.7 < M < 3.5$, after global cut	DECODE
31	number of like sign, $2.7 < M < 3.5$, after global cut	DECODE
32	approximate number of read triggers, no selection	DECODE
36	number of opposite sign, $2.7 < M < 3.5$, no selection	DECODE

37	number of like sign, $2.7 < M < 3.5$	DECODE
33	number of opposite sign, all masses, after global cut	DECODE
34	number of ++, all masses, after global or image cut	DECODE
35	number of –, all masses, after global or image cut	DECODE
36	number of opposite sign, $2.7 < M < 3.5$,no selection	DECODE
37	number of like sign, $2.7 < M < 3.5$,no selection	DECODE
38	number of opposite sign, after upstream cuts, NBST > 0	DECODE
39	number of like sign, after upstream cuts, NBST > 0	DECODE
40	number of events after direct NVSEL cut, opp. sign	DECODE
41	number of any sign events, no selection except NBST > 0	DECODE
42	number of any sign events, no selection	DECODE
45	number of events after mass cut, opp sign	DECODE
46	number of events after mass cut, psi only	DECODE
47	number of events after fiducial image cut	DECODE
48	number of events after fiducial image cut, opp sign	DECODE
49	number of events after fiducial image cut, psi region	DECODE
50	number of events after direct global cut, opp sign	DECODE
51	number of events after direct global cut, psi region	DECODE
52	number of events after cut in CS cos teta	DECODE
54	total number of events with READEV waiting	READEV
55	number of events per run with READEV waiting	READEV
56	total number of events with Pz2 = 0	DECODE
57	number of events per run with Pz2 = 0	DECODE
58	number of read events per run (if DEBFL(1))	DECODE
59	number of written events per run (if DEBFL(1))	WRIMIC
60	number of written events	WRIMIC

Chapter 6

ALPHABETICAL INDEX OF VARIABLES

Variable	**type**	**common**	**comdeck**
ACCDIR	LOGICAL	TSTGLO	TSTGLO
ACCEPI	LOGICAL	FLAGS	FLAGS
ACCEPT	LOGICAL	FLAGS	FLAGS
ACCFL	LOGICAL	TSTGLO	TSTGLO
ACCIMA	LOGICAL	TSTGLO	TSTGLO
ADAMIC	REAL	MICRO	MICRO
AFILL0	REAL	FILLS	HIBOOK
AFILL7	REAL	FILLS	HIBOOK
ALUMI	REAL	RUN	RUNS
ALUMT	REAL	RUN	RUNS
ARGO	LOGICAL	RUN	RUNS
ATRSP	REAL	EVENT	EVENT
BETA	REAL	BEAMT	BEAMT
BFILL0	REAL	FILLS	HIBOOK
BHBADC	INTEGER	NA50DA	NA38DA
BHBCOR	REAL	NA50CO	NA38DA
BHBTCO	REAL	NA50CO	NA38DA
BHBTDC	INTEGER	NA50DA	NA38DA
BHIADC	INTEGER	NA50DA	NA38DA
BHICOR	REAL	NA50CO	NA38DA
BHITCO	REAL	NA50CO	NA38DA
BHITDC	INTEGER	NA50DA	NA38DA
BHLADC	INTEGER	NA50DA	NA38DA
BHLCOR	REAL	NA50CO	NA38DA
BHLTCO	REAL	NA50CO	NA38DA
BHLTDC	INTEGER	NA50DA	NA38DA
BHRADC	INTEGER	NA50DA	NA38DA
BHRCOR	REAL	NA50CO	NA38DA
BHRTCO	REAL	NA50CO	NA38DA
BHRTDC	INTEGER	NA50DA	NA38DA
BHTADC	INTEGER	NA50DA	NA38DA
BHTCOR	REAL	NA50CO	NA38DA
BHTTCO	REAL	NA50CO	NA38DA
BHTTDC	INTEGER	NA50DA	NA38DA
BINADC	INTEGER	NA50DA	NA38DA

BINCOR	REAL	NA50CO	NA38DA
CALADC	INTEGER	NA50DA	NA38DA
CALCOR	REAL	NA50CO	NA38DA
CDM	REAL	BEAMT	BEAMT
CENNOR	REAL	ZDCVAR	ZDCVAR
CENTR	REAL	ZDCVAR	ZDCVAR
CLOSED	LOGICAL	FLAGS	FLAGS
CNORM	REAL	RUN	RUNS
CORCIB	REAL	SELECT	SELECT
COSTCS	REAL	EVENT	EVENT
CTCSMC	REAL	SIMUL	SIMUL
CTCUT	REAL	RCUTS	SELECT
CTCUT1	REAL	RCUTS	SELECT
CTCUT2	REAL	RCUTS	SELECT
CUCIBI	LOGICAL	SELECT	SELECT
CUCIBR	LOGICAL	SELECT	SELECT
CUHALO	LOGICAL	SELECT	SELECT
CUT	REAL	EVENT	EVENT
CUTBIT	CHARACTER	CUTALP	CUTALP
CUTCOR	REAL	CUTPAR	CUTPAR
CUTFID	REAL	SELECT	SELECT
CUTGLO	REAL	SELECT	SELECT
CUTMAH	REAL	OLCUTS	SELECT
CUTMAT	REAL	OLCUTS	SELECT
DAYFIL	CHARACTER	RXFNFT	LFILEP
DEBFL	LOGICAL	FLAGS	FLAGS
DIFTI	REAL	ZDCVAR	ZDCVAR
DIMASS	REAL	EVENT	EVENT
DIOLAS	INTEGER	NA50DA	NA38DA
DMAGX	REAL	TSTGLO	TSTGLO
DMAGY	REAL	TSTGLO	TSTGLO
DMCUT	REAL	RCUTS	SELECT
DMMC	REAL	SIMUL	SIMUL
DPHI	REAL	TSTGLO	TSTGLO
DTMO	REAL	FLASHP	PILUP
D1	REAL	TSTGLO	TSTGLO
D2	REAL	TSTGLO	TSTGLO
EARADC	INTEGER	NA50DA	NA38DA
EARCOR	REAL	NA50CO	NA38DA
EC	REAL	ETCUT	ETCUT
ECUTDA	REAL	ETCUT	ETCUT
ECUTPB	REAL	ETCUT	ETCUT
ECUTPR	REAL	ETCUT	ETCUT
ECUTSO	REAL	ETCUT	ETCUT
ETOTMC	REAL	SIMUL	SIMUL
ETRGA	LOGICAL	FLAGS	FLAGS
ETRHIG	REAL	SELECT	SELECT
ETRLOW	REAL	SELECT	SELECT

EXITFL	LOGICAL	FLAGS	FLAGS
FIELD	REAL	RUN	RUNS
FILTRL	INTEGER	NA50DA	NA38DA
FLPRT	LOGICAL	FLAGS	FLAGS
FPILUP	INTEGER	EVENT	EVENT
GAMMA	REAL	BEAMT	BEAMT
GLOBAL	REAL	TSTGLO	TSTGLO
GLOCUT	REAL	MICRO	MICRO
GREF	REAL	FLASHP	PILUP
HISTOS	LOGICAL	FLAGS	FLAGS
HMEM	REAL	PAWC	PAW
IBUF	INTEGER	EPIO	LFILEP
ICUTS	INTEGER	MICRO	MICRO
IDEBF	INTEGER	FLAGS	FLAGS
IDEBI	INTEGER	FLAGS	FLAGS
IDNTUP	INTEGER	NTUPL	FLAGS
IEVENT	INTEGER	EVENT	EVENT
IEVTIM	INTEGER	EVENT	EVENT
IFAIL	INTEGER	FLAGS	FLAGS
IFEVE	INTEGER	FLAGS	FLAGS
IFIRUN	INTEGER	SELECT	SELECT
IFLAGS	INTEGER	EVENT	EVENT
IFRUN	INTEGER	RUN	RUNS
ILEVE	INTEGER	FLAGS	FLAGS
IOSLS	INTEGER	EVENT	EVENT
ISBIN	INTEGER	EVENT	EVENT
ISBIN1	INTEGER	EVENT	EVENT
ISBIN2	INTEGER	EVENT	EVENT
ISTO	INTEGER	FLAGS	FLAGS
ISTOR	INTEGER	FLAGS	FLAGS
ISYNFL	INTEGER	EVENT	EVENT
ITCOUN	INTEGER	EVENT	EVENT
ITCVDV	INTEGER	TSTGLO	TSTGLO
ITRZDC	INTEGER	EVENT	EVENT
JWS	INTEGER	EPIO	LFILEP
LASRUN	INTEGER	SELECT	SELECT
LBUF	INTEGER	EPIO	LFILEP
LEVRUN	INTEGER	RUN	RUNS
LFEPER	INTEGER	LFILES	LFILEP
LFSEL	INTEGER	LFILES	LFILEP
LFTAPS	INTEGER	LFILES	LFILEP
LFTIN	INTEGER	LFILES	LFILEP
LFTOUT	INTEGER	LFILES	LFILEP
LISTRN	LOGICAL	SELECT	SELECT
LSTRUN	LOGICAL	FLAGS	FLAGS
LWS	INTEGER	EPIO	LFILEP
MDMUL1	INTEGER	EVENT	EVENT
MDMUL2	INTEGER	EVENT	EVENT

MDNSC1	INTEGER	EVENT	EVENT
MDNSC2	INTEGER	EVENT	EVENT
MICBH	INTEGER	MICRO	MICRO
MICCAL	INTEGER	MICRO	MICRO
MICGLO	INTEGER	MICRO	MICRO
MICTGT	INTEGER	MICRO	MICRO
MICTRK	INTEGER	MICRO	MICRO
MICTYP	INTEGER	LFILES	LFILEP
MICZDC	INTEGER	MICRO	MICRO
NBDIMS	INTEGER	EVENT	EVENT
NBINM	INTEGER	BOOK	HIBOOK
NBINP	INTEGER	BOOK	HIBOOK
NBRUNS	INTEGER	RUN	RUNS
NBST	INTEGER	EVENT	EVENT
NCOUNT	INTEGER	COUNTS	COUNTS
NDEBF	INTEGER	FLAGS	FLAGS
NDEBI	INTEGER	FLAGS	FLAGS
NET	INTEGER	BOOK	HIBOOK
NETT	INTEGER	BOOK	HIBOOK
NEVENT	INTEGER	FLAGS	FLAGS
NFEVE	INTEGER	FLAGS	FLAGS
NFILE	INTEGER	LFILES	LFILEP
NIBHAD	INTEGER	EVENT	EVENT
NIBHTD	INTEGER	EVENT	EVENT
NICALO	INTEGER	EVENT	EVENT
NIZDC	INTEGER	ZDCVAR	ZDCVAR
NLEVE	INTEGER	FLAGS	FLAGS
NLUMI0	INTEGER	RUN	RUNS
NMIC	INTEGER	LFILES	LFILEP
NMICO	INTEGER	LFILES	LFILEP
NN	INTEGER	TSTGLO	TSTGLO
NOCIBF	INTEGER	SUBTAR	SUBTAR
NOCIBI	INTEGER	EVENT	EVENT
NOCIBR	INTEGER	EVENT	EVENT
NOCIOV	INTEGER	SELECT	SELECT
NOCIUN	INTEGER	SELECT	SELECT
NOHALO	LOGICAL	EVENT	EVENT
NOJITR	INTEGER	EVENT	EVENT
NORLAS	INTEGER	NA50DA	NA38DA
NOSLS	INTEGER	RUN	RUNS
NPARAS	INTEGER	EVENT	EVENT
NPAT	INTEGER	FLAGS	FLAGS
NREF	INTEGER	FLASHP	PILUP
NRT0J	INTEGER	FLASHP	PILUP
NRUN	INTEGER	RUN	RUNS
NSETUP	INTEGER	RUN	RUNS
NSEXT1	INTEGER	EVENT	EVENT
NSEXT2	INTEGER	EVENT	EVENT

NTRETR	INTEGER	ETCUT	ETCUT
NTRM1	INTEGER	ETCUT	ETCUT
NTUPLE	LOGICAL	FLAGS	FLAGS
NVERSA	CHARACTER	FLAGS	FLAGS
NVERSM	INTEGER	MICRO	MICRO
NVERSP	INTEGER	MICRO	MICRO
NVERSR	INTEGER	FLAGS	FLAGS
NVSEL	INTEGER	EVENT	EVENT
NWMIC	INTEGER	READIN	LFILEP
NWMICO	INTEGER	LFILES	LFILEP
NZCIBL	INTEGER	SELECT	SELECT
NZHTAR	INTEGER	RUN	RUNS
N0CIBF	INTEGER	SUBTAR	SUBTAR
OLDTRI	INTEGER	FLAGS	FLAGS
PA	REAL	TSTGLO	TSTGLO
PATHO	LOGICAL	FLAGS	FLAGS
PBEAM	REAL	BEAMT	BEAMT
PHCMMC	REAL	SIMUL	SIMUL
PHCSMC	REAL	SIMUL	SIMUL
PHICS	REAL	EVENT	EVENT
PILUCU	INTEGER	SELECT	SELECT
PL1	REAL	EVENT	EVENT
PL2	REAL	EVENT	EVENT
PRBCUT	REAL	SELECT	SELECT
PROCUT	REAL	TSTGLO	TSTGLO
PS	REAL	TSTGLO	TSTGLO
PTCUT	REAL	RCUTS	SELECT
PTDIM	REAL	EVENT	EVENT
PTMC	REAL	SIMUL	SIMUL
PTRSP	REAL	EVENT	EVENT
PT1	REAL	EVENT	EVENT
PT2	REAL	EVENT	EVENT
PUCUT	LOGICAL	SELECT	SELECT
PX1	REAL	EVENT	EVENT
PX2	REAL	EVENT	EVENT
PY1	REAL	EVENT	EVENT
PY2	REAL	EVENT	EVENT
PZ1	REAL	EVENT	EVENT
PZ2	REAL	EVENT	EVENT
RAPID	REAL	EVENT	EVENT
REF	REAL	FLASHP	PILUP
REFM	REAL	FLASHP	PILUP
REJECR	LOGICAL	RUN	RUNS
RMCUT1	REAL	RCUTS	SELECT
RMCUT2	REAL	RCUTS	SELECT
RNGCOR	REAL	NA50CO	NA38DA
RPCUT1	REAL	RCUTS	SELECT
RPCUT2	REAL	RCUTS	SELECT

RUNSEL	REAL	SELECT	SELECT
RXCUT1	REAL	RCUTS	SELECT
RXCUT2	REAL	RCUTS	SELECT
RYCUT1	REAL	RCUTS	SELECT
RYCUT2	REAL	RCUTS	SELECT
SELFLD	REAL	SELECT	SELECT
SELFLF	REAL	SELECT	SELECT
SELRUN	LOGICAL	SELECT	SELECT
SFM	REAL	SUBTAR	SUBTAR
SHORT	LOGICAL	FLAGS	FLAGS
SIMUFL	LOGICAL	MICRO	MICRO
SOJITR	INTEGER	EVENT	EVENT
SQRTS	REAL	BEAMT	BEAMT
SUMZDC	REAL	ZDCVAR	ZDCVAR
TAGNTU	REAL	NTUPL	FLAGS
TAPOUT	REAL	LFILES	LFILEP
TGTADC	INTEGER	NA50DA	NA38DA
TGTCOR	REAL	NA50CO	NA38DA
TIMOUT	LOGICAL	FLAGS	FLAGS
TITNTU	REAL	NTUPL	FLAGS
TWODIM	REAL	RCUTS	SELECT
T0BH	REAL	FLASHP	PILUP
VARCUT	REAL	EVENT	EVENT
VARNTU	REAL	NTUPL	FLAGS
WAITNG	LOGICAL	FLAGS	FLAGS
WRIRUN	LOGICAL	FLAGS	FLAGS
XFCUT	REAL	RCUTS	SELECT
XFDIM	REAL	EVENT	EVENT
XFMC	REAL	SIMUL	SIMUL
XMA	REAL	BOOK	HIBOOK
XMI	REAL	BOOK	HIBOOK
XTRSP	REAL	EVENT	EVENT
YCM	REAL	BEAMT	BEAMT
YCUT	REAL	RCUTS	SELECT
YMA	REAL	BOOK	HIBOOK
YMI	REAL	BOOK	HIBOOK
YMUMU	REAL	EVENT	EVENT
Y1	REAL	EVENT	EVENT
Y2	REAL	EVENT	EVENT
ZCIBI	REAL	SUBTAR	SUBTAR
ZDCADC	INTEGER	NA50DA	NA38DA
ZDCCOR	REAL	NA50CO	NA38DA
ZDCCUT	LOGICAL	SELECT	SELECT
ZDCPUP	INTEGER	EVENT	EVENT
ZDCSEL	LOGICAL	SELECT	SELECT
ZDCTDC	INTEGER	NA50DA	NA38DA
ZMBAD	REAL	SUBTAR	SUBTAR
ZOJITR	INTEGER	EVENT	EVENT

ZVERT	REAL	EVENT	EVENT

Chapter 7

ORGANIGRAMME

```
RELMIC
——-> INIT
        ——->        READCD
                    ——->        JUCOMP
        ——->        WORD
        ——->        USER
        ——->        INITRX
——-> PROCES
        ——->        CHDATE
        ——->        FLON
        ——->        READEV
                    ——->        RDADCC
                    ——->        HVOLTG
                    ——->        DMPBLK
                    ——->        FLON
                    ——->        NEXTPI
        ——->        BEGRUN
                    ——->        FLON
                    ——->        GEOMET
                    ——->        SETGEO
                                ——->        DEFBOR
                    ——->        INICAL
                    ——->        HISBUK
                    ——->        USER
        ——->        WRIMIC
                    ——->        NFIX
        ——->        DECODE
                    ——->        FLON
                    ——->        READEV
                    ——->        ADCCOR
                    ——->        CALCUL
                    ——->        PUPZDC
                    ——->        PUCALO
                                ——->        PUCARF
                                            ——->        PU2TDC
                                ——->        PUTDC
                    ——->        CUT
```

```
                    ———–>       HISGLO
                    ———–>       CINEM
                    ———–>       USER
                    ———–>       DBEVT
        ———–>       HISFIL
        ———–>       USER
        ———–>       DMPBLK
        ———–>       NEXTPI
———–> FINISH
        ———–>       OUTGLO
                    ———–>       RIGHT
        ———–>       USER
        ———–>       PLOTCC
```