1 Preface

The *open*UTM Universal Transaction Monitor is a comprehensive middleware platform, offering a wealth of options for designing and implementing transaction-oriented OLTP applications, as well as the functionality of a complete message queuing system.

Thanks to its optimum performance, sophisticated security functions, and high availability, *open*UTM is also suitable for situations in which conventional OLTP systems have long been pushed to their limits.

*open*UTM forms a secure, efficient framework for modern, multi-tier client/server architectures. Among other things, it controls global transactions, optimizes the utilization of system resources (memory, CPU, etc.), manages parallel access, takes care of access control, and sets up network connections.

The name "*open*UTM" says it all:

open	... because *open*UTM complies with the reference model for Distributed Transaction Processing (DTP) defined by X/Open and supports the open interfaces standardized by X/Open.
Universal	... because *open*UTM links different environments and is designed for use in the most varied scenarios: it integrates heterogeneous networks, platforms, resource managers, and applications.
Transaction	... because *open*UTM guarantees complete global transaction security in accordance with the classical ACID properties of atomicity, consistency, isolation and durability.
Monitor	... because *open*UTM not only offers "pure" transaction processing, but also allows for the management of distributed, enterprise-wide IT solutions.

1.1 Summary of contents and target group

This manual is intended to support programmers writing *open*UTM applications in PL/I in their work. It is a supplement to the *open*UTM manual "Programming Applications with KDCS for COBOL, C and C++".

A basic knowledge of the operating system and *open*UTM, as well as of the core manual "Programming Applications with KDCS for COBOL, C and C++" is required. For more detailed information, the *open*UTM manuals "Generating and Administering Applications", "Messages, Debugging and Diagnostics" and "Concepts and Functions" should be consulted.

This manual describes the language-specific points to be observed when writing PL/I program units.

It provides sample programs written in PL/I for individual KDCS calls and for the event service MSGTAC, as well as an example for a complete *open*UTM application.

The PL/I data structures are listed in chapter “Data structures for PL/I” on page 45ff).

README file

Information on any functional changes and additions to the current product version described in this manual can be found in the product-specific README file.

On a BS2000 computer, you will find the README file under the file name SYSRME.*product*.*version*.*language*. Please ask your system supervisor for the user ID on which the README file is located. You can view the README file with the /SHOW-FILE command or in an editor or you can print it to a standard printer with the following command:

```
/PRINT-DOCUMENT filename, LINE-SPACING=*BY-EBCDIC-CONTROL
```

If you have a SPOOL version prior to 3.0A:

```
/PRINT-FILE FILE-NAME=filename,LAYOUT-CONTROL=
    PARAMETERS(CONTROL-CHARACTERS=EBCDIC)
```

2 Structure of PL/I program units

This chapter tells you

– how to write a PL/I program unit as a subroutine

– what UTM PL/I INCLUDEs are, as well as how to program a KDCS call in PL/I

– what special features (shared code, addressing aids etc.) and restrictions apply to PL/I program units.

The term "PL/I compiler" refers to the compiler PLI1 in BS2000. UTM V4.0 works with the compiler PLI1(BS2000) as of Version 4.1A.

2.1 PL/I program units as subroutines

UTM program units and event exits are subroutines of the UTM main routine. This has the following consequences:

- The program name is the main entry point (see section “Program name” on page 4). Other ENTRYs are also permitted.
- At least one parameter (data structure) must have been declared (see section “PARAMETER areas” on page 6).
- The RUNOPTIONS values are not read from the terminal (SYSDTA = PRIMARY) but from a file named PLI1.OPTIONS that you must make available.

For compatibility purposes, and in order to work with error-free entries, it is advisable to adopt constants from the PL/I INCLUDE library SYSLIB.UTM.040.PLI1 (see section “Data structures for UTM PL/I programs” on page 7).

The data structures and constants are described in detail on page 7. The chapter "The KDCS calls" in the *open*UTM core manual „Programming Applications with KDCS“ shows you how to use them in the individual calls.

The individual INCLUDE elements are listed in chapter “Data structures for PL/I” on page 45 and are therefore not described in detail in this section.

2.2 Program name

The PROCEDURE or ENTRY statement is used to define the entry point(s) of the program unit (external entry names of the procedure).

This name is freely selectable. It must be unique within the application program. Some names are already reserved, and therefore must be avoided.

– All names beginning with KDC, KC or I are reserved.

– Make sure that the names do not conflict with the PLI1 runtime system and, if applicable, any other linked-in runtime systems, the database systems or the formatting system and UTM.

– The following rules also apply when shared codes are used:

  – the first 6 bytes must be unique, and
  – the name must not be identical to the format name.

The program name (entry point) must also be specified at UTM generation (see the PROGRAM statement in the *open*UTM manual „Generating and Handling Applications“.

2.3 Declarations

The external entry constant "KDCS" for the KDCS calls (see below) must be declared without data description as an Assembler procedure:

```
DCL KDCS ENTRY OPTIONS (ASSEMBLER);
```

The program must not be compiled with COMOPT OPTIONS=ISO (default value: OPTIONS=NOISO).

To make program units compatible and enhance their readability, constants have been provided with permanently declared KDCS names. They are supplied as INCLUDE elements in the library with the file name "SYSLIB.UTM.040.PLI1".

It is advisable to declare AUTOMATIC only those fields with permanently assigned values. If you also wish the data in your variable-length data areas to be AUTOMATIC, you can also define the KDCS parameter area and the message area in this way. However, since it is advisable to put them in the SPAB in order to save storage space, they are described in the following section.

For the other PL/I storage classes the following applies:

– STATIC and CONTROLLED variables prevent programs/program units from being shareable (see page 14).

– The management of CONTROLLED and BASED data with ALLOCATE/FREE may require explicit system calls (SVCs) for memory management. This inevitably has a negative effect on performance.
It is not possible to pass this data to another program unit, because the addresses of the memory areas are not saved by UTM, i.e. access is only possible within **one** program unit. For this reason they should not be used with UTM.

2.3.1 PARAMETER areas

Every program unit, including the event exits, must contain as a parameter at least one data structure describing the KDCS communication area.

It may be followed by another 01-level data structure (another parameter) describing the standard primary working area (SPAB). This can be used for the KDCS parameter area and the message areas.

Both data structures are supplied as INCLUDE elements in the SYSLIB.UTM.040.PLI1 library (see page 7). You have to define the message areas yourself. If your are working with FHS (Format Handling System), you can create your own addressing aids (see page 15).

Note

The declaration of the parameters must not contain any * entries (CHAR(*), BIT(*), AREA(*)) because the requisite data description cannot be transferred.

Example

```
 .
 .
 .
%INCLUDE KCKBP;                                          (1)
 5 KB_ANYTHING  CHAR(22);                                (2)
%INCLUDE KCPAP;                                          (3)
 3 NB,                                                   (4)
%INCLUDE FORMA;                                          (4)
```

(1) KDCS communication area.

(2) Application-specific declaration of KB program area.

(3) SPAB with KDCS parameter area.

(4) Message area. The INCLUDE statement fetches the addressing aid for a previously created format “FORMA”.

2.3.2 Data structures for UTM PL/I programs

In order to structure data areas, INCLUDE elements containing these data structures are supplied with UTM. The data structures available for PL/I programs and their functions are shown in the table below.

Name of the INCLUDE element	**Contents and meaning**
KCAPROP	This defines an optional second parameter area for the APRO call. KCAPROP is used to select specific OSI TP function combinations.
KCATP	KDCS attribute functions. When +formats are used, you can change the attribute fields of the formats using symbolic names for attribute functions.
KCCFP	This defines the second parameter transferred by UTM with the INPUT event exit. In this parameter UTM passes the contents of the control fields of screen formats to the program unit. For this reason this parameter is also known as the control fields area.
KCDADP	Data structure for the DADM call. You should place this data structure over the message area if you want to use the DADM RQ call.
KCDFP	KDCS screen functions. You can use these symbolic names to request particular functions of a terminal by entering the name of the desired function in the KCDF field of the KDCS parameter area (only relevant when the communication partner is a terminal).
KCINFP	Data structure for information provided by the UTM call INFO. You should place this data structure over the message area if you want to use the INFO call. Structure declaration starts at level 03.
KCINIP	This defines a second parameter area for the INIT call (necessary only with INIT PU). In this parameter area UTM returns the information requested with INIT PU.
KCINPP	Data structure for the INPUT exit. KCINPL contains input and output parameters; the output parameters determine the effect of the input entered at the terminal.
KCKBP	This defines the KDCS communication area. It contains: - the current data of the service and program, - return information following a call to UTM and - the KB program area for data transfer between programs within a service. In addition, you must define the KB program area (see example below)

KCMSGP	Data structure for the UTM messages. You need this data structure when you want to interpret messages in an MSGTAC routine. Structure declaration starts at level 03.
KCOPP	KDCS operation code. This data structure contains symbolic names for the KDCS operations. Enter a name for your KDCS calls in the KCOP field of the KDCS parameter area. Using this INCLUDE element guarantees the validity of an operation code.
KCPADP	Data structure for the PADM call. You should place this data structure over the message area if you want to use the PADM AI or PI call.
KCPAP	Defines the standard primary working area (SPAB). KCPAP contains the KDCS parameter area which accepts the parameters of a call to UTM. Any further definitions you should add yourself.

Note

The data structures KCPAP and KCKBP are "open", i.e. they are not separated by a semicolon, in order to permit further declaration of structure elements (KB program area, message area).

The data structures are copied into the program unit as shown in the example.

Example

```
TPROG: PROC (KCKBP,KCSPAB);
.
.
.
%INCLUDE KCKBP;
 5 KBPRG  CHAR(80);
%INCLUDE KCPAP;
 3 NB  CHAR(30),
%INCLUDE KCINFP;
%INCLUDE TIAMCTRC;
%INCLUDE KCOPP;
%INCLUDE KCATP;
%INCLUDE KCDFP;
%INCLUDE KCDFP;
.
.
.
```

These INCLUDE elements are listed in chapter “Data structures for PL/I” on page 45.

In addition to the communication area and the SPAB, you can also create up to 99 additional parameter areas for each program unit. These can then be used as common data areas within a UTM application. These areas can be located in:

– an application-global common memory pool (via all applications in a processor),
– an application-local common memory pool (via all tasks in an application), or
– a linked application program.

For further information see the *open*UTM manual „Generating and Handling Applications“.

You create an area of this sort in the same way as an application program and link it

– either in a common memory pool in the same way as shareable program units, or
– in the "non-shareable" part of the application program.

You can change the contents of this area from within the application program but UTM does not offer any support for serializing access or transferring the modified data to the next application run. You can prevent the contents of such an area being changed by entering the operand ACCESS=READ in the MPOOL statement at generation time.

An area of this sort is defined in the same way as a program.

Example

The area AREA1 is to be used as a common data area with a length of 2000 bytes. First, define the area as a program (in Assembler):

```
AREA1     CSECT
          DS    2000C
          END
```

This area is defined with the AREA statement when the UTM application is generated, not with the PROGRAM statement as in the case of programs. The sequence of the areas and their type (local or global) are defined at the same time.

Global areas to be placed in a common memory pool must be entered in the share table with an MPOOL statement, just like shareable programs. The *open*UTM manual „Generating and Handling Applications“ describes how to generate such areas.

How to use areas of this type in your PL/I programs

You should define this area either as a parameter (and specify it in the PROC statement) or as EXTERNAL.

When passing parameters, the sequence in which the AREA statements are defined is also important. If an area defined at the nth position is required, all areas up to this point must be specified in the PROC statement.

Example

AREA1, AREA2 and AREA3 have been defined in this order with the AREA statement. AREA3 is required in a program unit. All the areas have been defined with a length of 2000 bytes.

```
TP1:PROC (KCKBC,KCSPAB,AREA1,AREA2,AREA3);
%INCLUDE KCKBP;
.
.
.
%INCLUDE KCPAP;
.
.
.
DCL AREA1  CHAR(2000) PARM;
DCL AREA2  CHAR(2000) PARM;
DCL AREA3  CHAR(2000) PARM;
```

This function is not part of DIN standard 66 265.

2.4 Command section of a UTM program unit

You are free to design the command section of a UTM program unit as you wish. The only restriction is that you have to follow a few transaction processing rules, as described in detail in the chapter dealing with the structure and use of UTM programs in the *open*UTM core manual „Programming Applications with KDCS“. These concern:

– the program unit as a subroutine of the KDCROOT main routine
– reentrant programming
– strict dialog (in dialog programs)
– reentrancy for shared code, if applicable.

In this section you will find some special points to observe:

- Since a program unit runs as a subroutine, UTM passes the addresses of the data structures and any additional areas (see above) as parameters.
- Some calls to UTM must be entered in a particular order.
- Special rules apply to event exits (see page 13).

2.4.1 Passing addresses

An entry to a UTM program unit or event exit is defined as follows:

```
<tpname>:{PROC  }(kckbp[,spab][,param1[,...paramn]])[OPTIONS(ILCS)];
         {ENTRY}
```

kckbp — Name of the KDCS communication area which has to be defined as a structure in the program unit. If the INCLUDE element is used, this name is KCKBP.

spab — Name of the standard primary working area defined as the second parameter. If the INCLUDE element is used, this name is KCSPAB, the name of the INCLUDE element, however, is KCPAP. If a separate area (AUTOMATIC data) was used instead of the SPAB, this entry is omitted.

param1
...
paramn — Names of common data areas which were also declared (see above). In particular, these objects may be storage areas used to extend the SPAB, but they can also be procedures. If these areas are not used, this entry is omitted.

2.4.2 Calling UTM functions

Preparing the data

Before you can call a UTM function in the program, all the necessary parameters must be set in the KDCS parameter area. These include

– the operation code of the call

– additional parameters determined by the operation code (see the chapter entitled "The KDCS calls" in the *open*UTM core manual „Programming Applications with KDCS“).

Format of the CALL call

Once all the necessary data areas have been supplied with values, the UTM main routine KDCROOT can be called. The entry address for all operations is KDCS.
The CALL call has the following format:

```
CALL KDCS (parm1[,parm2]);
```

parm1 is the data name of the KDCS parameter area. When the corresponding INCLUDE element is used, this name is KCPAP. It is a mandatory specification.

parm2 is the data name of the storage area in the program where messages or data (if applicable) are to be entered or where they were made available. In this manual the area is usually called "NB" (message area). However, you can use any name you want.

The data names can be partially qualified as needed.

Example

A data structure recurring as a substructure is to be used as a message area.

```
.
   3 BOOK5,
     5 DATX             CHAR(50);
.
.
.
   3 BOOK8,
     5 DATX             CHAR(50);
. .
.
CALL KDCS (KCPAP,BOOK5.DATX);
```

2.5 Event exits

Event exits INPUT, START, SHUT and VORGANG ("service") must not contain any KDCS calls. Event exits must be exited via the PL/I statement "END;" or "RETURN;".

START event exit

If the START program unit detects an error (e.g. an attempt to open a non-existent file) and the start has to be terminated for this reason, the event exit START must be exited via the ERROR condition ("SIGNAL ERROR;", if applicable, or TERMJ in Assembler).

SHUT event exit

The event exit SHUT is called in the case of application program termination, PEND ER, STXIT handling, and termination of application program exchange.

2.6 Special points relating to PL/I

This section tells you

– how to make PL/I programs which implement shareable modules shareable

– how to create and use PL/I addressing aids, as well as how to work in extended line mode

– what other compiler-dependent points need to be observed.

2.6.1 Shareable modules

The following modules can be loaded as shareable:

– PLI1 modules that are shareable
– formats
– the formatting routine MFHSROUT
– the database connection module, provided it is shareable
– the message module KCSMSGS
– PLI1 runtime system modules (for exceptions see the "PLI1" User Guide).

UTM offers three ways of doing this:

– shareable modules are loaded into class 4 memory (only up to and including BS2000/OSD V2.0)
– shareable modules are loaded into the common memory pool in the user storage area (class 6 memory); cf. the *open*UTM manual „Generating and Handling Applications“
– shareable modules are loaded as nonprivileged subsystems

It is not yet possible to make PL/I program units shareable.

2.6.2 Formatting

Creating formats with IFG

The “IFG” manual explains in detail how to create formats with IFG. When these formats are created for use with UTM, pay attention to the following points:

- The format name must not be more than 7 characters long.
- Select "structure of the data transfer area" in the user profile
  - for #formats: separate attribute blocks and field contents
  - for *formats: unaligned, no attribute fields
  - for +formats: unaligned, with attribute fields
- Declare an addressing aid (IFG creates only **one** addressing aid for PL/I; see also the “IFG” manual).
  The example below shows you how to use the addressing aid created by IFG:

```
%INCLUDE KCKBP;
 05 PRG  CHAR(80);
%INCLUDE KCPAP;
 03 NB,
%INCLUDE FORMA;
```

  Here FORMA is the format name defined with IFG for input and output. When using this format, specify the format name as "*FORMA" in the KCMF field of the MPUT, FPUT or DPUT call (this gives you addressing aids without attribute fields) or as "+FORMA" (for addressing aids with attribute fields) or as "#FORMA" for #formats.

  IFG supplies the format length in the field AREA_LENGTH_formatname at the end of the INCLUDE element.
- Please note when defining addressing aids that, in the case of MGET and FGET calls, UTM removes the transaction code from the message at the start of the service, unless this is prevented in an INPUT exit. If the first field in the format contains the transaction code, you must take this into account in the addressing aids for input formatting. The example below shows one way of doing this:

```
%INCLUDE KCPAP,
 3 NB,
  5 TAC   CHAR(8);
  5 DATA CHAR(225);
DCL 1 MASK BASED (ADDR(NB)),
%INCLUDE FORMA;
```

- When preparing formats for use, you should enter them in the format application file (format library), the name of which must be specified in the FHS start parameters.

Modifying KDCS attributes

In order to support programming, UTM provides all the supported combinations in the INCLUDE element KCATP. If ’0000’B4 is specified in an attribute field, the attributes from the format creation stage are taken.

Extended line mode

In line mode, it is possible to structure the output message with logical control characters (see also the section describing how to work in line mode in the *open*UTM core manual „Programming Applications with KDCS“). In line mode, all the control characters of the TIAM access method are permitted. The control characters are described for COBOL in the "TIAM" User Guide under "Data structure LINE-MODE-CONTROL-CHARACTERS". It is a simple matter to convert the data structure TIAMCTRC to PL/I (see the example in chapter “Data structures for PL/I” on page 45) and incorporate it in your program as an INCLUDE.

2.6.3 Restrictions when programming with PL/I

– Storage space requested dynamically with ALLOCATE within a program unit for a CONTROLLED or BASED variable must be released again with FREE within the same program unit. In other words, a FREE statement must be issued for each ALLOCATE statement before the PEND call.
It is **not** possible to pass this CONTROLLED and BASED data to another program unit as access is only possible within one program unit. It is therefore advisable not to use this function with UTM (see also page 5).

– Each UTM program unit must be terminated with PEND.

– The STOP and SIGNAL FINISH statements should not be used.

– The data description for the parameters which are passed to the PL/I program unit by UTM must not contain any * entries (e.g. `CHAR(*)`).

– The ATTENTION condition must not be used.

2.6.4 UTM generation

When assembling the ROOT table module with the assembler, the PLI1.MACLIB library must be assigned as an additional ALTLIB (see also the *open*UTM manual „Generating and Handling Applications“) if a PL/I program unit or event exit with PROGRAM ..., COMP=PLI1 has been generated.

2.6.5 ILCS interface for PL/I

PL/I program units can be called in accordance with ILCS conventions by including **OPTIONS(ILCS)** in the procedure or entry declaration. Refer to the "PLI1" User Guide for further information.

2.7 Language-specific condition (error) handling

The condition (error) handling provided by the PL/I language elements (see the "PLI1" Reference Manual) can be used almost without restriction, insofar as this is necessary under UTM (exception: ATTENTION condition and related functions). In the event of an error, UTM passes control to the PLI1 runtime system and this checks whether an ON unit has been declared in the user program/program unit for the event that has occurred.

After error handling the program unit run can be resumed with GOTO without returning directly to UTM. If the ON unit is left via END, however, processing is not resumed at the interrupt point, control is returned directly to UTM via the PLI1 system unit, and standard UTM error handling is initiated, as in cases where **no** user ON unit has been declared. The PLI1 system unit is implemented via an ON ERROR unit in the linkage module UTMPLI1 (PROGRAM ..., COMP=PLI1) which, after outputting relevant error information (ERROUT, SNAP, SDUMP, ADUMP), returns control to UTM with an appropriate return code.
For program units generated with PROGRAM ..., COMP=ILCS, the error information is output after an ON ... SYSTEM and then the UTM application programm is terminated with IW90.

If possible, UTM outputs the PLI1 ONCODE with a UTM message (such as K067).

An example of an error routine can be found in the PL/I sample program.

3 Examples in PL/I

This chapter gives simple examples for coding a KDCS call and an example of a complete *open*UTM application, including KDCDEF generation.

3.1 Examples of individual KDCS calls

This section contains coding examples for the following KDCS calls:

– MGET
– MPUT
– DPUT
– APRO with MPUT for distributed processing

As the remaining KDCS calls are coded in the same way, no explicit description of them is given here.

In the following examples, the names defined in the predefined packets are used for the data structures and constants (see page 4 and chapter “Data structures for PL/I” on page 45). The names of the application-specific structures are based on the examples on page 5ff (e.g. KB for the communication area and NB for the message area):

MGET call

- An 80-byte unformatted dialog message is to be received. If a shorter message is sent by mistake, a prompt for the input to be repeated is to be issued.

```
   .
KCOP=MGET;
KCLA=80;
KCMF='␣';
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MGET_ERROR;
IF KCRLM ?=KCLA THEN CALL REPEAT;              1)
```

1) In the routine 'REPEAT', a prompt for the input to be repeated is issued to the communication partner.

- The basic format 'PIC15' was requested from a terminal. The length of the unprotected data is 8 characters for the TAC plus 500 characters in various format fields. This format is to be received in the program.

```
     .
KCOP=MGET;
KCLA=500;
KCMF='*PIC15';
CALL KDCS (KCPAP,IPIC15);
IF KCRCCC = '05Z' THEN CALL FORMA_ERROR;
ELSE IF KCRCCC ?='000' THEN CALL MGET_ERROR;              1)
     .
```

1) In the routine 'FORMAT_ERROR', the format must be displayed again to enable you to continue work with the correct format.

- In an ongoing service, an input may occur consisting of a short message generated with the F2 key and 10 characters of additional data. This input is to activate a special function. The first example shows normal operation.

```
     .
KCOP=MGET;
CALL KDCS (KCPAP,NB);
IF KCRCCC = '21Z' THEN CALL SPECIAL_MGET;                 1)
.
SPECIAL_MGET: PROC;                                       2)
     KCOP=MGET;
     KCLA=10;
     KCMF='␣';
     CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MGET_ERROR;
```

1) A special function is queried.
2) Another MGET is required for the 10 characters.

MPUT call

- A complete 80-byte message is to be sent.

```
   .
   .
KCOP=MPUT;
KCOM='NE';
KCLM=80;
KCRN='␣';
KCMF='␣';
KCDF='0'B;
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MPUT_ERROR;
```

- The final message in a service is to be sent to a format terminal. The name of the format is '*PIC15'. The screen should be cleared beforehand.

```
   .
   .
KCOP=MPUT;
KCOM='NE';
KCLM=500;
KCRN='␣';
KCMF='*PIC15';
KCDF=KCREPL;                                              1)
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MPUT_ERROR;
```

1) REPLACE is performed by default when you change from one format to another. The output is made in order to prevent errors due to undefined field contents.

- In a *format 'PIC10', which according to the last input at the terminal still exists, all variables (i.e. overwritable fields) are to be deleted as the response. The protected fields are to remain intact.

```
   .
   .
KCOP=MPUT;
KCOM='NE';
KCLM=0;
KCRN='␣';
KCMF='*PIC10';
KCDF=KCERAS;
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MPUT_ERROR;
```

DPUT call

- An asynchronous job with a message of 11 characters is to be sent to a follow-up program on the 6th day of the 6th month (=157th day of the year) at 12.00 p.m. (absolute time entry). The TAC is ’DEEDAY’.

```
KCOP=DPUT;
KCOM='NE';
KCLM=11;
KCRN='DEEDAY';
KCMF='␣';
KCDF='0'B;
KCMOD='A';
KCTAG='157';
KCSTD='12';
KCMIN='00';
KCSEC='00';
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL DPUT_ERROR;
```

- An asynchronous job with a message of 80 characters is to be sent after one hour (relative time entry) to the data display terminal ’DDT1’. The screen function "audible alarm" (BEL) is also to be triggered.

```
KCOP=DPUT;
KCOM='NE';
KCLM=80;
KCRN='DDT1';
KCMF='␣';
KCDF=KCALARM;
KCMOD='R';
KCTAG='000';
KCSTD='01';
KCMIN='00';
KCSEK='00';
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL DPUT_ERROR;
```

APRO call with MPUT for distributed processing

The dialog service with the transaction code ’LTAC1’ of the job-receiving application ’PARTNER1’ is to be addressed from the job-submitting service (double-step addressing). At the same time, the job-receiving service is to be assigned the service ID ’>COID1’. An MPUT message, length 100, is then sent in line mode to the partner application .

```
  .
  .
KCOP=APRO;
KCOM='DM';
KCLM=0;
KCRN='TAC1';
KCPA='PARTNER1';
KCPI='>COID1';
CALL KDCS (KCPAP);
IF KCRCCC ?='000' THEN CALL APRO_ERROR;
 .
 .
 .
KCOP=MPUT;
KCOM='NE';
KCLM=100;
KCRN='␣';
KCMF='␣';
KCDF='0'B;
CALL KDCS (KCPAP,NB);
IF KCRCCC ?='000' THEN CALL MPUT_ERROR;
 .
 .
 .
```

3.2 Example of an asynchronous MSGTAC program unit

The MSGTAC program unit DATPRO is intended to prevent unauthorized users from signing on to a UTM application. If more than three KDCSIGN attempts are made at an LTERM partner with an invalid user ID, password or ID card, the connection to this terminal is to be cleared down. This requires the following:

For preparatory actions, see the *open*UTM core manual „Programming Applications with KDCS“.

Implementing the MSGTAC program unit

The MSGTAC program unit DATPRO counts the number of failed attempts to sign on in a TLS. If UTM accepts a KDCSIGN (i.e. message K008 or K033 is output), this TLS is deleted again.
If, following three invalid KDCSIGN attempts, the fourth KDCSIGN attempt is also invalid, the corresponding terminal is to be disconnected via "asynchronous administration". This takes place via an FPUT call with KCRN=’KDCLTRMA’ and a message area with the contents ’LTERM=Kclogter,ACT=DIS (see also the *open*UTM manual „Generating and Handling Applications“.
The administration command is then logged in the user log file with LPUT and the TLS is deleted.

Each K message is read by the MGSTAC program unit using FGET. When one K message has been "processed", the next K message is read immediately with FGET within the same program unit run.

Example

```
DATPRO:PROC (KCKBP,KCSPAB);

DCL KDCS ENTRY OPTIONS (ASM);
DCL STRING BUILTIN;

DCL  ID_HACK_TLS          CHAR (8) INIT ('TLSHACK');

DCL  HACK_MAX             BIN FIXED (31)  INIT (3);

DCL  01  ADM_SATZ,
       02  ADM_LNG            BIN FIXED (31)  INIT (43),
       02  ADM_TXT,
         03  T1               CHAR (07) INIT ('PTERM=('),
         03  T2               CHAR (08),
         03  T3               CHAR (09) INIT ('),PRONAM='),
         03  T4               CHAR (08),
         03  T5               CHAR (11) INIT (',ACTION=DIS');

DCL  01  UTM_ERROR_LINE,
         03  T1               CHAR (18)
             INIT ('ERROR IN PROGUNIT'),
         03  F_MODUL          CHAR (08) INIT ('DATPRO'),
         03  T2               CHAR (12) INIT ('; VORG./TAC'),
         03  F_VG             CHAR (08),
         03  T3               CHAR (01) INIT ('/'),
         03  F_AL             CHAR (08),
         03  T4               CHAR (05) INIT (' WG.'),
         03  F_OP             CHAR (04),
         03  T5               CHAR (07) INIT ('  (RC:'),
         03  F_RC             CHAR (08),
         03  T6               CHAR (01) INIT (')');
%INCLUDE KCOPP;
%INCLUDE KCKBP;
         05  KB_PRG           CHAR (01);

%INCLUDE KCPAP;
        03  NB,
           05  HACKER_LTERM     CHAR (8),
           05  NB_ADM,
             07  T1             CHAR (07),
             07  PTRM           CHAR (08),
             07  T3             CHAR (09),
             07  PRNM           CHAR (08),
             07  T5             CHAR (11),
           05  TLS_HACK,
             07  HACK_NUM       BIN FIXED (31),
           05  TXT              CHAR (80),
%INCLUDE KCMSGP;

     INIT_ANF:
         KCOP = INIT;
         KCLKBPRG = 0;
         KCLPAB = 512;
         CALL KDCS (KCPAP);
         IF  KCRCCC  ?= '000'
         THEN  GOTO  PEND_RSET;
```

```
FGET_ANF:
    KCOP = FGET;
    KCLA = 96;
    KCMF = ' ';
    CALL KDCS (KCPAP,KCMSGP);
    IF  KCRCCC  ?= '000'
    THEN
       IF  KCRCCC = '10Z'
       THEN
         GOTO PEND_ANF;
       ELSE
         GOTO PEND_RSET;

    IF  MSGNO = 'K004' THEN       /* INVALID IDENTIFICATION */
      HACKER_LTERM = K004.LTRM;

    ELSE IF  MSGNO = 'K006' THEN  /* INVALID PASSWORD     */
      HACKER_LTERM = K006.LTRM ;

    ELSE IF  MSGNO = 'K008' THEN  /* KDCSIGN ACCEPTED   */
      HACKER_LTERM = K008.LTRM ;

    ELSE IF  MSGNO = 'K031' THEN  /* CARD NOT OK      */
      HACKER_LTERM = K031.LTRM ;

    ELSE IF  MSGNO = 'K033' THEN  /* START FORMAT */
      HACKER_LTERM = K033.LTRM ;

    ELSE DO;
      KCOP = MSGNO;
      GOTO PEND_RSET;
         END;
    CALL WORK;
    IF  KCRCCC  ?= '000' THEN
       GOTO  PEND_RSET;

    GOTO  FGET_ANF;  /* ANY MORE K_MESSAGE    */

PEND_ANF:
    KCOP = PEND;
    KCOM = 'FI';
    CALL KDCS (KCPAP);

PEND_RSET:
    F_OP = KCOP;
    F_VG = KCTACVG;
    F_AL = KCTACAL;
    F_RC = STRING(KCRC);
    NB.TXT  = STRING(UTM_ERROR_LINE);
    KCOP = RSET;
    CALL KDCS (KCPAP);
PEND_RSET_LPUT:
    KCOP = LPUT;
    KCLA = 80;
    CALL KDCS (KCPAP,NB);
PEND_RSET_ANF:
    KCOP = PEND;
    KCOM = 'FI';
    CALL KDCS (KCPAP);
```

```
WORK: PROC;

     A0:
          KCOP = GTDA;
          KCLA = 2;
          KCRN = ID_HACK_TLS;
          KCLT = HACKER_LTERM;
          CALL KDCS (KCPAP,TLS_HACK);
          IF   KCRCCC  ?=  '000' THEN
            GOTO  A9;

          IF  KCRLM = 0
          THEN
             IF  MSGNO = 'K008'
               | MSGNO = 'K033'
             THEN;       /*  OK; NO TLS AVAILABLE    */
             ELSE DO;    /*  SET UP TLS              */
                KCOP = PTDA;
                KCLA = 2;
                HACK_NUM = 1;
                KCRN = ID_HACK_TLS;
                KCLT = HACKER_LTERM;
                CALL KDCS (KCPAP,TLS_HACK);
                  END;
          ELSE
             IF  MSGNO = 'K008'
               | MSGNO = 'K033'
             THEN  DO;     /*  OK; DELETE TLS   */
                KCOP = PTDA;
                KCLA = 0;
                KCRN = ID_HACK_TLS;
                KCLT = HACKER_LTERM;
                CALL KDCS (KCPAP,TLS_HACK);
                   END;
             ELSE
                CALL CHECK_NUM;
A9: END WORK;

CHECK_NUM: PROC;

          HACK_NUM = HACK_NUM +1;
          IF  HACK_NUM  ?>  HACK_MAX
          THEN DO;    /* CONTINUE PRACTISING */
             KCOP = PTDA;
             KCLA = 2;
             KCRN = ID_HACK_TLS;
             KCLT = HACKER_LTERM;
             CALL KDCS (KCPAP,TLS_HACK);
             GOTO  P9;
               END;
          ELSE      /* ELSE  DISCONNECT !!   */
          NB_ADM = ADM_TXT , BY NAME;
          IF  MSGNO = 'K004'  THEN
            NB_ADM  =  K004 ,BY NAME;
          ELSE IF  MSGNO = 'K006' THEN
            NB_ADM  =  K006 ,BY NAME;
          ELSE
            NB_ADM  =  K031 ,BY NAME;
```

```
      P_FPUT:
          KCOP = FPUT;
          KCOM = 'NE';
          KCRN = 'KDCPTRMA';
          KCLM = ADM_LNG;
          KCMF = ' ';
          KCDF = '0'B;
          CALL KDCS (KCPAP,NB_ADM);
          IF  KCRCCC  ?=  '000' THEN
            GOTO  P9;
      P_LPUT:            /* LOG AT USER_LOGGING  */
          KCOP = LPUT;
          KCLA = ADM_LNG;
          CALL KDCS (KCPAP,NB_ADM);
          IF  KCRCCC  ?=  '000' THEN
            GOTO  P9;
      P_PTDA:             /* DELETE TLS    */
          KCOP = PTDA;
          KCLA = 0;
          KCRN = ID_HACK_TLS;
          KCLT = HACKER_LTERM;
          CALL KDCS (KCPAP,TLS_HACK);
P9:   END CHECK_NUM;

PROG_END:
          END DATPRO;
```

3.3 Example of a complete UTM application

Example: address management

This sample application can be used to manage address data located in an ISAM file. For this purpose, the application supplies the following functions, all of which can be called by entering the appropriate TAC in the field provided. A format is used for input and output.

TAC	Function	
1	Display	displays an address from the file. The search criterion (ISAM key) is the last name and first two letters of the first name, which have to be specified in the associated fields.
2	Add	enters a new address in the file. There must not already be an address with the same search criterion (see above).
3	Modify	modifies an address entry. The address must already exist in the file.
4	Delete	deletes an address from the file.

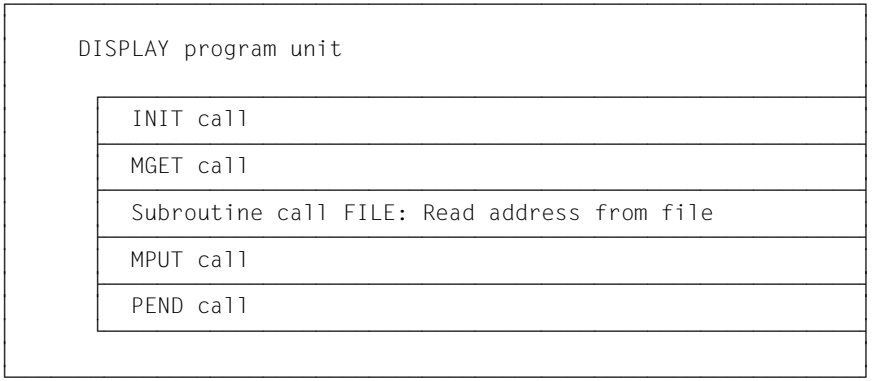
An input error produces an error message in the bottom line of the format.

The above-named digits are the transaction codes (TACs) used to control the application. Transaction code 1 calls the program unit DISPLAY, transaction codes 2, 3 and 4 the program unit MODIFY. Each of these program units then branches to the program unit FILE. This program unit serves as a START and SHUT event exit and contains the subroutines that perform input/output to the address file.
The program unit BADTACS is called automatically by UTM whenever an invalid TAC is entered. Following the connection setup to the application and a successful KDCSIGN, UTM immediately outputs the format (start format). Interaction with the user then proceeds in strict dialog, i.e. when a TAC and the ISAM key are entered, the application responds by displaying the format containing the desired address or by outputting a success or error message in the bottom line.

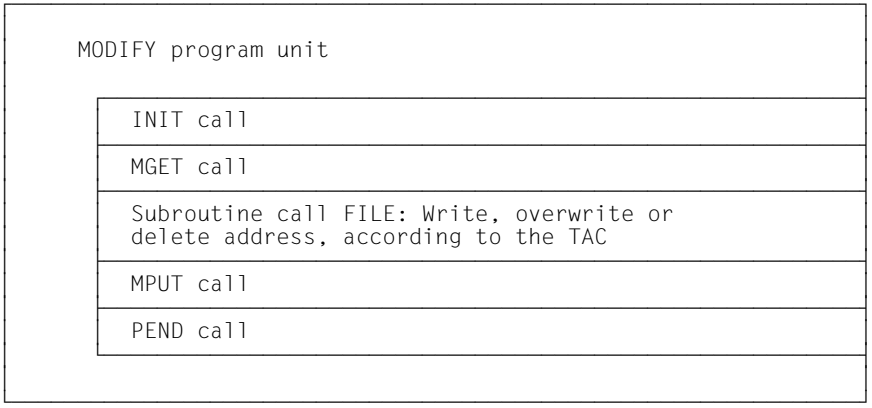
Note

This program is only intended to show how to program with UTM. The ISAM file access operations are not backed up by the UTM transaction concept. For a "genuine" application, it is advisable to use a database system or LEASY. For the sake of simplicity, DB-specific program units have not been included in this example.

The following structure diagrams show the structure of the program units:



Structure diagram of the DISPLAY program unit



Structure diagram of the MODIFY program unit

For the sake of completeness, the PL/I program is immediately followed by generation of this application. The precise meaning of the individual operands and statements can be found in the *open*UTM manual „Generating and Handling Applications“.

The figure below shows the format used for this application:

```
     1   5    10    15    20    25    30    35    40    45    50    55    60    65    70    75    80
    -+---+----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-
 1  |********************************************************************************|
 2  |                      A d d r e s s   M a n a g e m e n t                       |
 3  |********************************************************************************|
 4  |      Please select a function: ________                                        |
 5  |--------------------------------------------------------------------------------|
 6  |      Current function:  nnnnnnnnnnnnnnnnnnnnnnnnn                              |
 7  |                                                                                |
 8  |                                                                                |
 9  |      Last name:______________            First name:_____________________      |
10  |                                                                                |
11  |      Street:_________________________    No:__________                         |
12  |                                                                                |
13  |      ZIP code:#####                      City:___________________________      |
14  |                                                                                |
15  |      Phone:__________________                                                  |
16  |                                                                                |
17  |--------------------------------------------------------------------------------|
18  |                                 Function menu                                  |
19  |    1 = Display addresses                |  4 = Delete addresses                |
20  |    2 = Add new addresses                |                                      |
21  |    3 = Modify addresses                 |      Quit with kdcoff                |
22  |--------------------------------------------------------------------------------|
23  |nnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn|
24  |                                                                                |
    -+---+----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-
     1   5    10    15    20    25    30    35    40    45    50    55    60    65    70    75    80
```

The *format "FORMA" used by this application.

IFG attribute list for the *format FORMA

```
POSITION
 LI CO  FIELD NAME
                                LENGTH ATTRIBUTES
                                ( (*) OR (**) INDICATES DEVIATION FROM USER PROFILE VALUES )

 01 001                         080  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 02 023                         035  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 03 001                         080  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 04 007                         026  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 04 033 TAC                     008  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
 05 001                         080  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 06 007                         019  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ITALICS
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
                                     (*)
 06 026 FUNCTION                026  OUTPUT FIELD, PROTECTED, NORMAL, ACCESSIBLE TO PROGRAM
                                     ITALICS
                                     AUTO INPUT
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
                                     (*)
 09 007                         010  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 09 017 LASTNAME                014  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
 09 043                         011  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 09 054 FST                     002  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
                                     START OF GROUP   LASTNAME:   FIRSTNAME
 09 056                         001  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 09 057 FSTREST                 018  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
                                     END OF GROUP
 11 007                         007  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 11 014 STREET                  025  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
 11 039                         007  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
```

```
POSITION
 LI CO  FIELD NAME
                                LENGTH ATTRIBUTES
                                ( (*) OR (**) INDICATES DEVIATION FROM USER PROFILE VALUES )

 11 046 HOUSENO                 010  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
 13 007                         009  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 13 016 ZIP                     005  INPUT FIELD, NUMERIC, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: RIGHT     / '0'
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : RIGHT     / NIL
                                     (*)
 13 043                         005  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 13 048 CITY                    027  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
 15 007                         006  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 15 013 PHONE                   018  INPUT FIELD, UNPROTECTED, BRIGHT, ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: LEFT     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : LEFT     / ' '
                                     (*)
 17 001                         080  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 18 034                         013  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 19 005                         058  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 20 005                         036  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 21 005                         058  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 22 001                         080  TEXT FIELD, PROTECTED, NORMAL, NOT ACCESSIBLE TO PROGRAM
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
 23 001 MESSAGETEXT             080  OUTPUT FIELD, PROTECTED, NORMAL, ACCESSIBLE TO PROGRAM
                                     UPPERCASE ONLY
                                     ALIGNMENT / FILL CHARACTER FOR INPUT: NONE     / ' '
                                     ALIGNMENT / FILL CHARACTER OUTPUT   : NONE     / ' '
                                     (*)
```

Program unit DISPLAY

```
DISPLAY: PROC (KCKBP,KCSPAB);

  DCL KDCS ENTRY OPTIONS(ASM);
  DCL READ ENTRY;

  DCL 1 ERRORTEXT,
        3 TEXT1  CHAR (21) INIT ('***  E R R O R  ***'),
        3 TEXT2  CHAR (14) INIT ('PROGRAM UNIT: '),
        3 F_TP   CHAR (8),
        3 TEXT3  CHAR (17) INIT ('OPERATIONCODE: '),
        3 F_OP   CHAR (4),
        3 TEXT4  CHAR (13) INIT ('RETURNCODE: '),
        3 F_CD   CHAR (3);
  %INCLUDE KCOPP;
  %INCLUDE KCKBP;
          5 KBPRG CHAR (512);
  %INCLUDE KCPAP;
        3 NB,
          %INCLUDE FORMA;
  DCL 1 NB_E  DEF NB,
          5 TRANSAC CHAR(8),
          5 DATA    CHAR(225);

 /* END OF DECLARATIONS  */

 INIT_OP:
    NB   = ' ';
    KCOP = INIT;
    KCLKBPRG = 0;
    KCLPAB = 233;
    CALL KDCS (KCPAP);
    IF KCRCCC ?= '000' THEN DO;
                       F_OP = INIT;
                       GOTO ERROR_HANDLING;
                       END;
 MGET_OP:
    KCOP = MGET;
    KCLA = 233;
    KCMF = '*FORMA';
    CALL KDCS (KCPAP,DATA);
    IF KCRCCC = '05Z' THEN DO;
                       NB = ' ';
                       GOTO MPUT_OP;
                       END;
    IF KCRCCC ?= '000' THEN DO;
                       F_OP = MGET;
                       GOTO ERROR_HANDLING;
                       END;

    CALL READ (NB);
```

```
MPUT_OP:
   KCRN ,TAC = ' ';
   KCOP = MPUT;
   KCOM = 'NE';
   KCLM = 233;
   KCMF = '*FORMA';
   CALL KDCS (KCPAP,NB);
   IF KCRCCC ?= 'OOO' THEN DO;
                      F_OP = MPUT;
                      GOTO ERROR_HANDLING;
                      END;
PEND_OP:
   KCOP = PEND;
   KCOM = 'FI';
   CALL KDCS (KCPAP,NB);

ERROR_HANDLING:
   F_TP  = 'DISPLAY';
   F_CD  = KCRCCC;
   NB    = STRING(ERRORTEXT);
   KCOP  = MPUT;
   KCOM  = 'NE';
   KCLM  = 80;
   KCRN,KCMF = ' ';
   KCDF  = 'O'B;
   CALL KDCS (KCPAP,NB);
   KCOP = PEND;
   KCOM = 'ER';
   CALL KDCS (KCPAP,NB);
END: END DISPLAY;
```

Program unit MODIFY

```
MODIFY: PROC (KCKBP,KCSPAB);

  DCL KDCS ENTRY OPTIONS(ASM);
  DCL (WRITE, OVERWRITE, DELETE) ENTRY;

  DCL 1 ERRORTEXT,
        3 TEXT1  CHAR (21) INIT ('***  E R R O R  ***'),
        3 TEXT2  CHAR (14) INIT ('PROGRAMUNIT: '),
        3 F_TP   CHAR (8),
        3 TEXT3  CHAR (17) INIT ('OPERATIONCODE: '),
        3 F_OP   CHAR (4),
        3 TEXT4  CHAR (13) INIT ('RETURNCODE: '),
        3 F_CD   CHAR (3);
  %INCLUDE KCOPP;
  %INCLUDE KCKBP;
          5 KBPRG CHAR (512);
  %INCLUDE KCPAP;
        3 NB,
          %INCLUDE FORMA;
  DCL 1 NB_E  DEF NB,
          5 TRANSAC CHAR(8),
          5 DATA    CHAR(225);

 /* END OF DECLARATIONS  */

 INIT_OP:
    NB   = ' ';
    KCOP = INIT;
    KCLKBPRG = 0;
    KCLPAB = 233;
    CALL KDCS (KCPAP);
    IF KCRCCC ?= '000' THEN DO;
                       F_OP = INIT;
                       GOTO ERROR_HANDLING;
                       END;
 MGET_OP:
    KCOP = MGET;
    KCLA = 233;
    KCMF = '*FORMA';
    CALL KDCS (KCPAP,DATA);
    IF KCRCCC = '05Z' THEN DO;
                       NB = ' ';
                       GOTO MPUT_OP;
                       END;
    IF KCRCCC ?= '000' THEN DO;
                       F_OP = MGET;
                       GOTO ERROR_HANDLING;
                       END;

 FILE_OPERATION:
      IF KCTACVG = '2' THEN
         CALL WRITE (NB);
         ELSE IF KCTACVG = '3' THEN
                 CALL OVERWRITE (NB);
                 ELSE IF KCTACVG = '4' THEN
                         CALL DELETE (NB);
```

```
MPUT_OP:
   KCRN ,TAC = ' ';
   KCOP = MPUT;
   KCOM = 'NE';
   KCLM = 233;
   KCMF = '*FORMA';
   CALL KDCS (KCPAP,NB);
   IF KCRCCC ?= 'OOO' THEN DO;
                     F_OP = MPUT;
                     GOTO ERROR_HANDLING;
                     END;
PEND_OP:
   KCOP = PEND;
   KCOM = 'FI';
   CALL KDCS (KCPAP,NB);

ERROR_HANDLING:
   F_TP  = 'MODIFY';
   F_CD  = KCRCCC;
   NB    = STRING(ERRORTEXT);
   KCOP  = MPUT;
   KCOM  = 'NE';
   KCLM  = 80;
   KCRN,KCMF = ' ';
   KCDF  = 'O'B;
   CALL KDCS (KCPAP,NB);
   KCOP = PEND;
   KCOM = 'ER';
   CALL KDCS (KCPAP,NB);
END: END MODIFY;
```

Program unit FILE with START/SHUT EXIT and file accesses

```
FILE: PROC (KCKBP,KCSPAB);

DCL KDCS ENTRY OPTIONS(ASM);

DCL ADDRESSES FILE RECORD DIRECT KEYED ENV(INDEXED);

DCL 1 D_ADDRESSRECORD,
      2 D_NAME,
        3 D_LASTNAME          CHAR(14),
        3 D_FST               CHAR(02),
      2 D_FSTNAME,
        3 D_FSTNAME_FST       CHAR(02),
        3 D_FSTNAME_REST      CHAR(18),
      2 D_STREET              CHAR(25),
      2 D_NO                  CHAR(10),
      2 D_ZIP                 CHAR(05),
      2 D_CITY                CHAR(27),
      2 D_PHONE               CHAR(18);

%INCLUDE KCKBP;
 5 KBPRG                      CHAR(233);

%INCLUDE KCPAP;
 3 NB                      CHAR(233);
DCL 1 ADDRESSRECORD,
      2 FORMAT,
        %INCLUDE FORMA;

/*          END OF DECLARATIONS                */



/*          START/SHUT ROUTINE                 */

IF KCTACVG = 'STARTUP'  THEN OPEN  FILE (ADDRESSES) MODIFY;
IF KCTACVG = 'SHUTDOWN' THEN CLOSE FILE (ADDRESSES) ;

GOTO END;



READ: ENTRY (ADDRESSRECORD);



       ON KEY (ADDRESSES) CALL FILE_ERROR;

       D_LASTNAME = NAME;
       D_FST = FST;
       D_FSTNAME = FSTNAME;
       D_STREET,D_NO,D_ZIP,D_CITY,D_PHONE = ' ';
       TAC = KCTACVG;
       FUNKTION = 'DISPLAY ADDRESSES  ';

       READ FILE (ADDRESSES) INTO (D_ADDRESSRECORD) KEY (STRING(D_NAME));
```

```
        NAME = D_LASTNAME;
        FSTNAME = D_FSTNAME;
        STREET = D_STREET;
        NO = D_NO;
        ZIP = D_ZIP;
        CITY = D_CITY;
        PHONE = D_PHONE;


GOTO END;

WRITE: ENTRY (ADDRESSRECORD);


        ON KEY (ADDRESSES) CALL FILE_ERROR;

            D_LASTNAME = NAME;
            D_FST = FST;
            D_FSTNAME = FSTNAME;
            D_STREET = STREET;
            D_NO = NO;
            D_ZIP = ZIP;
            D_CITY = CITY;
            D_PHONE = PHONE;
            TAC = KCTACVG;
            FUNCTION = 'ADD NEW ADDRESSES';
            MESSAGETEXT = '*  ADDRESS HAS BEEN ADDED * ';

            WRITE FILE (ADDRESSES) FROM (D_ADDRESSRECORD)
                                   KEYFROM (STRING(D_NAME));

GOTO END;

OVERWRITE: ENTRY (ADDRESSRECORD);

        ON KEY (ADDRESSES) CALL FILE_ERROR;

               D_LASTNAME = NAME;
               D_FST = FST;
               D_FSTNAME = FSTNAME;
               D_STREET = STREET;
               D_NO = NO;
               D_ZIP = ZIP;
               D_CITY = CITY;
               D_PHONE = PHONE;
               TAC = ' ';
               FUNCTION = 'MODIFY ADDRESSES';
               MESSAGETEXT = '*  ADDRESS HAS BEEN CHANGED  * ';

               REWRITE FILE (ADDRESSES) KEY (STRING(D_NAME))
                                        FROM (D_ADDRESSRECORD);

GOTO END;
```

```
DELETE: ENTRY (ADDRESSRECORD);

       ON KEY (ADDRESSES) CALL FILE_ERROR;

          D_LASTNAME = NAME;
          D_FST = FST;
          FUNCTION = 'DELETE ADDRESSES ';

          DELETE FILE (ADDRESSES) KEY (STRING(D_NAME));

          TAC = ' ';
          MESSAGETEXT = '*  ADDRESS HAS BEEN DELETED  * ';

GOTO END;

  FILE_ERROR: PROC;
  DCL 1 FILE_ERROR_LINE,
        2 TEXT1                 CHAR(28)
          INIT ('   *** FILE ERROR ONCODE = '),
        2 FILESTATUS            CHAR (2),
        2 TEXT2                 CHAR(04)  INIT (' ***'),
        2 TEXT3                 CHAR(46)  INIT (' ');

  FILESTATUS = CHAR(ONCODE(),2);
  IF ONCODE() = 52 THEN
    MESSAGETEXT = '*** ADDRESS WITH THIS NAME ALREADY EXISTS. ***';
                  ELSE IF ONCODE() = 51 THEN
    MESSAGETEXT = '*** ADDRESS WITH THIS NAME NOT FOUND. ***';
                        ELSE MESSAGETEXT = STRING(FILE_ERROR_LINE);
  END FILE_ERROR;


END: END FILE;
```

Program unit BADTACS

```
BADTACS: PROC (KCKBP,KCSPAB);

  DCL KDCS ENTRY OPTIONS(ASM);

  DCL 1 ERRORTEXT,
        3 TEXT1  CHAR (21) INIT ('***  E R R O R  ***'),
        3 TEXT2  CHAR (14) INIT ('PROGRAMUNIT: '),
        3 F_TP   CHAR (8),
        3 TEXT3  CHAR (17) INIT ('OPERATIONCODE: '),
        3 F_OP   CHAR (4),
        3 TEXT4  CHAR (13) INIT ('RETURNCODE: '),
        3 F_CD   CHAR (3);
  %INCLUDE KCOPP;
  %INCLUDE KCKBP;
          5 KBPRG CHAR (512);
  %INCLUDE KCPAP;
        3 NB CHAR (233);
  DCL 1 NB_E  DEF NB,
          5 TRANSAC CHAR(8),
          5 DATA    CHAR(225);
  DCL 1 NB_A  DEF NB,
  %INCLUDE FORMA;
  DCL 1 ERROR,
        3 STAR1   CHAR(6) INIT ((6)'*'),
        3 BADTEXT CHAR(45)
            INIT ('  INCORRECT TAC - PLEASE REPEAT INPUT.  '),
        3 STAR2   CHAR(6) INIT ((6)'*'),
        3 REST    CHAR(23) INIT (' ');

 /* END OF DECLARATIONS  */

 INIT_OP:
    NB   = ' ';
    KCOP = INIT;
    KCLKBPRG = 0;
    KCLPAB = 233;
    CALL KDCS (KCPAP);
    IF KCRCCC ?= 'OOO' THEN DO;
                       F_OP = INIT;
                       GOTO ERROR_HANDLING;
                       END;
 MGET_OP:
    KCOP = MGET;
    KCLA = 233;
    KCMF = '*FORMA';
    CALL KDCS (KCPAP,DATA);
    IF KCRCCC = '05Z' THEN DO;
                       NB_A = ' ';
                       GOTO MPUT_OP;
                       END;
    IF KCRCCC ?= 'OOO' THEN DO;
                       F_OP = MGET;
                       GOTO ERROR_HANDLING;
                       END;
```

```
MPUT_OP:
   MESSAGETEXT = STRING(ERROR);
   KCRN ,TAC = ' ';
   KCOP = MPUT;
   KCOM = 'NE';
   KCLM = 233;
   KCMF = '*FORMA';
   CALL KDCS (KCPAP,NB);
   IF KCRCCC ?= '000' THEN DO;
                     F_OP = MPUT;
                     GOTO ERROR_HANDLING;
                     END;
PEND_OP:
   KCOP = PEND;
   KCOM = 'FI';
   CALL KDCS (KCPAP,NB);

ERROR_HANDLING:
   F_TP  = 'BADTACS';
   F_CD  = KCRCCC;
   NB    = STRING(ERRORTEXT);
   KCOP  = MPUT;
   KCOM  = 'NE';
   KCLM  = 80;
   KCRN,KCMF = ' ';
   KCDF  = '0'B;
   CALL KDCS (KCPAP,NB);
   KCOP = PEND;
   KCOM = 'ER';
   CALL KDCS (KCPAP,NB);
END: END BADTACS;
```

KDCDEF statements

```
REM ***************************************************************
REM ***             D E F   S T A T E M E N T S                 ***
REM ***                                                         ***
REM ***                      KDCFILE = APPLI                    ***
REM ***************************************************************
MAX APPLINAME=A
MAX KDCFILE=(KDCFILE.APPLI,S),TASKS=1,ASYNTASKS=0
MAX CONRTIME=5,LOGACKWAIT=60
ROOT ADRROOT
OPTION GEN=ALL
REM ***************************************************************
REM ************          PROGRAM STATEMENTS          *************
REM ***************************************************************
PROGRAM KDCADM,COMP=ILCS
PROGRAM DISPLAY,COMP=PLI1
PROGRAM MODIFY,COMP=PLI1
PROGRAM FILE,COMP=PLI1
PROGRAM BADTACS,COMP=PLI1
REM ***************************************************************
REM ************           EXIT STATEMENTS            *************
REM ***************************************************************
EXIT PROGRAM=FILE,USAGE=START
EXIT PROGRAM= FILE,USAGE=SHUT
REM ***************************************************************
REM ************            TAC STATEMENTS            *************
REM ***************************************************************
DEFAULT TAC ADMIN=Y,PROGRAM=KDCADM
TAC KDCTAC
TAC KDCLTERM
TAC KDCPTERM
TAC KDCSWTCH
TAC KDCUSER
TAC KDCSEND
TAC KDCAPPL
TAC KDCDIAG
TAC KDCLOG
TAC KDCINF
TAC KDCHELP
TAC KDCSHUT
DEFAULT TAC TYPE=A,ADMIN=Y,PROGRAM=KDCADM
TAC KDCTACA
TAC KDCLTRMA
TAC KDCPTRMA
TAC KDCSWCHA
TAC KDCUSERA
TAC KDCSENDA
TAC KDCAPPLA
TAC KDCDIAGA
TAC KDCLOGA
TAC KDCINFA
TAC KDCHELPA
TAC KDCSHUTA
TAC KDCTCLA
```

```
DEFAULT TAC TYPE=D,PROGRAM=(STD)
TAC KDCBADTC,PROGRAM=BADTACS
TAC 1,LOCK=1,PROGRAM=DISPLAY
TAC 2,LOCK=2,PROGRAM=MODIFY
TAC 3,LOCK=2,PROGRAM=MODIFY
TAC 4,LOCK=2,PROGRAM=MODIFY
REM ***************************************************************
REM ************           USER STATEMENTS            **************
REM ***************************************************************
USER  SUSIE,PASS=C'UTM4EVER',KSET=BUNCH1,PERMIT=ADMIN,FORMAT=*FORMA
USER  GERTRUDE,PASS=C'UTMNEVER',KSET=BUNCH2,STATUS=ON,FORMAT=*FORMA
USER  BARBARA,KSET=BUNCH3,STATUS=ON,FORMAT=*FORMA
REM ***************************************************************
REM ************        PTERM/LTERM STATEMENTS        **************
REM ***************************************************************
DEFAULT PTERM PRONAM=TC01,PTYPE=T9750
PTERM DDT01,LTERM=UTMDT1
PTERM DDT02,LTERM=UTMDT2
PTERM DDT03,LTERM=UTMDT3
DEFAULT PTERM PRONAM=TC01,PTYPE=T9022,USAGE=O
PTERM G01,LTERM=PRINTER,CONNECT=A
LTERM UTMDT1,KSET=BUNCH1
LTERM UTMDT2,LOCK=4,KSET=BUNCH1
LTERM UTMDT3,LOCK=5,KSET=BUNCH1
LTERM PRINTER,USAGE=O
REM ***************************************************************
REM ************           KSET STATEMENTS            **************
REM ***************************************************************
KSET  BUNCH1,KEYS=(1,2,3,4,5)
KSET  BUNCH2,KEYS=(1,2,4)
KSET  BUNCH3,KEYS=(1)
REM ***************************************************************
REM ************            TLS STATEMENTS            **************
REM ***************************************************************
TLS    TLSA
TLS    TLSB
END
```

4 Data structures for PL/I

4.1 Data structure KCAPROP

```
/*********************************************************************+**/
/*                                                                   +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992     +**/
/*                   ALL RIGHTS RESERVED                             +**/
/*                                                                   +**/
/*********************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0           +**/
/*********************************************************************/
/*                                                                    */
/*      Parameter Information for APRO Call                           */
/*                                                                    */
/*      FOR PLI1                    INCLUDE:   KCAPROP                */
/*********************************************************************/
         03         KCAPROP,
            11 KCVERS         BIN FIXED (15,0) UNAL, /* version      */
            11 KCFUPOL        CHAR (2),   /* polarized / shared      */
            11 KCFUHSH        CHAR (2),   /* handshake               */
            11 KCFUCOM        CHAR (3),   /* commit                  */
            11 KCFUCHN        CHAR (1),   /* chained / unchained     */
            11 KCFUFILL       CHAR (12),  /* for further extensions  */
            11 KCSECTYP       CHAR (1),   /* security type (N/S/P)   */
            11 KCUIDTYP       CHAR (1),   /* string type (P/T/O)     */
            11 KCUIDLTH       BIN FIXED (15,0) UNAL,/* lth of userid */
            11 KCUSERID       CHAR (16),  /* userid                  */
            11 KCSECFIL       CHAR (1),   /*                         */
            11 KCPWDTYP       CHAR (1),   /* string type (P/T/O)     */
            11 KCPWDLTH       BIN FIXED (15,0) UNAL,/* lth of psword */
            11 KCPSWORD       CHAR (16);  /* password                */
/*********************************************************************/
```

4.2 Data structure KCATP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*     KDCS ATTRIBUTE FUNCTIONS                                  */
/*     FOR PLI1                INCLUDE:   KCATP                  */
/*****************************************************************/
DCL  01  KCATP,
       02  KCALPH  FIXED BIN (15,0)   /*  UNPROT, BRT, PRINT    */
                   INIT (20512),
       02  KCNUME  FIXED BIN (15,0)   /*  UNPROT, BRT, NUM      */
                   INIT (21024),
       02  KCPROT  FIXED BIN (15,0)   /*  PROT, NORM            */
                   INIT (4360),
       02  KCUNPR  FIXED BIN (15,0)   /*  UNPROT, BRT           */
                   INIT (20512),
       02  KCNINT  FIXED BIN (15,0)   /*  UNPROT, NORM          */
                   INIT (20488),
       02  KCDINT  FIXED BIN (15,0)   /*  UNPROT, DRK           */
                   INIT (20484),
       02  KCHINT  FIXED BIN (15,0)   /*  UNPROT, BRT           */
                   INIT (20512),
       02  KCITAL  FIXED BIN (15,0)   /*  UNPROT, BRT, ITAL     */
                   INIT (20514),
       02  KCSIGN  FIXED BIN (15,0)   /*  UNPROT, BRT, SIGN     */
                   INIT (20513),
       02  KCDETE  FIXED BIN (15,0)   /*  PROT, BRT, DET        */
                   INIT (6432),
       02  KCAUN   FIXED BIN (15,0)   /*  UNPROT, NORM          */
                   INIT (20488),
       02  KCNUN   FIXED BIN (15,0)   /*  UNPROT, NORM, NUM     */
                   INIT (21000),
       02  KCAPN   FIXED BIN (15,0)   /*  PROT, NORM            */
                   INIT (4360),
       02  KCNPN   FIXED BIN (15,0)   /*  PROT, NORM            */
                   INIT (4360),
       02  KCAUD   FIXED BIN (15,0)   /*  UNPROT, DRK           */
                   INIT (20484),
       02  KCNUD   FIXED BIN (15,0)   /*  UNPROT, DRK, NUM      */
                   INIT (20996),
       02  KCAPD   FIXED BIN (15,0)   /*  PROT, DRK             */
                   INIT (4356),
       02  KCNPD   FIXED BIN (15,0)   /*  PROT, DRK             */
                   INIT (4356),
       02  KCAUH   FIXED BIN (15,0)   /*  UNPROT, BRT           */
                   INIT (20512),
       02  KCNUH   FIXED BIN (15,0)   /*  UNPROT, BRT, NUM      */
                   INIT (21024),
       02  KCAPH   FIXED BIN (15,0)   /*  PROT, BRT             */
                   INIT (4384),
       02  KCNPH   FIXED BIN (15,0)   /*  PROT, BRT             */
                   INIT (4384),
```

```
02  KCAUI   FIXED BIN (15,0)   /*  UNPROT, BRT, ITAL     */
             INIT (20514),
02  KCNUI   FIXED BIN (15,0)   /*  UNPROT, BRT, ITAL,NUM */
             INIT (21026),
02  KCAPI   FIXED BIN (15,0)   /*  PROT, NORM, ITAL      */
             INIT (4362),
02  KCNPI   FIXED BIN (15,0)   /*  PROT, NORM, ITAL      */
             INIT (4362),
02  KCAUS   FIXED BIN (15,0)   /*  UNPROT, BRT, SIGN     */
             INIT (20513),
02  KCNUS   FIXED BIN (15,0)   /*  UNPROT, BRT, SIGN,NUM */
             INIT (21025),
02  KCAPS   FIXED BIN (15,0)   /*  PROT, NORM, SIGN      */
             INIT (4361),
02  KCNPS   FIXED BIN (15,0)   /*  PROT, NORM, SIGN      */
             INIT (4361),
02  KCPREM  FIXED BIN (15,0)   /*  FSET, BRT             */
             INIT (5152),
02  KCAUNP  FIXED BIN (15,0)   /*  FSET, NORM            */
             INIT (5128),
02  KCNUNP  FIXED BIN (15,0)   /*  FSET, NORM, NUM       */
             INIT (5640),
02  KCAPNP  FIXED BIN (15,0)   /*  PROTRET, NORM         */
             INIT (12296),
02  KCNPNP  FIXED BIN (15,0)   /*  PROTRET, NORM         */
             INIT (12296),
02  KCAUHP  FIXED BIN (15,0)   /*  FSET, BRT             */
             INIT (5152),
02  KCNUHP  FIXED BIN (15,0)   /*  FSET, BRT, NUM        */
             INIT (5664),
02  KCAPHP  FIXED BIN (15,0)   /*  PROTRET, BRT          */
             INIT (12320),
02  KCNPHP  FIXED BIN (15,0)   /*  PROTRET, BRT          */
             INIT (12320),
02  KCAUND  FIXED BIN (15,0)   /*  UNPROT, NORM, DET     */
             INIT (22536),
02  KCNUND  FIXED BIN (15,0)   /*  UNPROT, NORM, DET     */
             INIT (22536),
02  KCAPND  FIXED BIN (15,0)   /*  PROT, NORM, DET       */
             INIT (6408),
02  KCNPND  FIXED BIN (15,0)   /*  PROT, NORM, DET       */
             INIT (6408),
02  KCAUHD  FIXED BIN (15,0)   /*  UNPROT, BRT, DET      */
             INIT (22560),
02  KCNUHD  FIXED BIN (15,0)   /*  UNPROT, BRT, DET      */
             INIT (22560),
02  KCAPHD  FIXED BIN (15,0)   /*  PROT, BRT, DET        */
             INIT (6432),
02  KCNPHD  FIXED BIN (15,0)   /*  PROT, BRT, DET        */
             INIT (6432),
02  KCAUID  FIXED BIN (15,0)   /*  UNPROT, BRT, DET,ITAL */
             INIT (22562),
02  KCNUID  FIXED BIN (15,0)   /*  UNPROT, BRT, DET,ITAL */
             INIT (22562),
02  KCAPID  FIXED BIN (15,0)   /*  PROT, NORM, DET, ITAL */
             INIT (6410),
02  KCNPID  FIXED BIN (15,0)   /*  PROT, NORM, DET, ITAL */
             INIT (6410),
02  KCAUSD  FIXED BIN (15,0)   /*  UNPROT, BRT, DET      */
             INIT (22560),
```

```
      02  KCNUSD  FIXED BIN (15,0)   /*  UNPROT, BRT, DET      */
                   INIT (22560),
      02  KCAPSD  FIXED BIN (15,0)   /*  PROT, NORM, DET       */
                   INIT (6408),
      02  KCNPSD  FIXED BIN (15,0)   /*  PROT, NORM, DET       */
                   INIT (6408);
                                      /*                        */
/*************************************************************/
```

4.3 Data structure KCCFP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1994  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
     /*****************************************************************/
DCL   01             KCCFILDP,
     /*****************************************************************/
     /*   CONTROL FIELDS FOR INPUT-EXIT                               */
     /*                                                               */
     /*   FOR PL1 PROGRAMS                        COPY:  KCCFP        */
     /*****************************************************************/
          03         KCCFCREM     CHAR (8),
     /*                                         REMARK AS DEFINED     */
     /*                                         BY IFG                */
          03         KCCFCFLD     CHAR (132),
     /*                                         CONTROL FIELD         */
          03         KCCFNOCF     BIN FIXED(31,0),
     /*                                         NUMBER OF             */
     /*                                         CONTROL FIELDS        */
          03         KCCFS(50),
     /*                                         ARRAY OF CONTROL      */
     /*                                         FIELD INFORMATION     */
               05    KCCFFNAM     CHAR (8),
     /*                                         FORMAT NAME           */
               05    KCCFREM      CHAR (8),
     /*                                         REMARK FROM IFG       */
               05    KCCFLOFL     BIN FIXED(31,0),
     /*                                         LENGTH OF             */
     /*                                         CONTROL FIELD         */
               05    KCCFFLD      CHAR (132);
     /*                                         CONTROL FIELD         */
```

4.4 Data structure KCDADP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************+**/
/*                                                                  */
/*      STRUCTURE FOR RESULTINFORMATION                             */
/*      OF KCSDADM FUNCTION                                         */
/*      FOR  PL1                    INCLUDE:   KCDADP               */
/*****************************************************************/

DCL  01         KCDADP,
           03     KCDAGUS        CHAR (8),   /* USER ID OF        */
                                             /* GENERATOR         */
           03     KCDADPID       CHAR (8),   /* DPUT ID           */
           03     KCDAGTIM,                  /* GENERATION TIME   */
             05   KCDAGDOY       CHAR (3),   /* DAY OF YEAR       */
             05   KCDAGHR        CHAR (2),   /* HOUR              */
             05   KCDAGMIN       CHAR (2),   /* MINUTE            */
             05   KCDAGSEC       CHAR (2),   /* SECOND            */
           03     KCDASTIM,                  /* DESIRED START TIME*/
             05   KCDASDOY       CHAR (3),   /* DAY OF YEAR       */
             05   KCDASHR        CHAR (2),   /* HOUR              */
             05   KCDASMIN       CHAR (2),   /* MINUTE            */
             05   KCDASSEC       CHAR (2),   /* SECOND            */
           03     KCDAPMSG       CHAR (1),   /* POS. ACKNOWL. JOB */
           03     KCDANMSG       CHAR (1);   /* NEG. ACKNOWL. JOB */
```

4.5 Data structure KCDFP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*    KDCS SCREEN OUTPUT FUNCTIONS                               */
/*    FOR PLI1                 INCLUDE:   KCDFP                  */
/*                                                               */
/*****************************************************************/
DCL 01           KCDFP,
      03         KCREPL        BIT (16) INIT ('0001'B4),
/*                                          CLEAR SCREEN AND   */
/*                                          DISPLAY FORMAT     */
      03         KCRESTRT      BIT (16) INIT ('0001'B4),
/*                                          SCREEN RESTART     */
/*                                          WITH PEND RS       */
      03         KCERAS        BIT (16) INIT ('0002'B4),
/*                                          ERASE UNPROTECTED  */
/*                                          FIELDS             */
      03         KCALARM       BIT (16) INIT ('0004'B4),
/*                                          BEL-FUNCTION       */
/*                                                             */
      03         KCREPR        BIT (16) INIT ('0008'B4),
/*                                          OUTPUT ON LOCAL    */
/*                                          PRINTER            */
      03         KCEXTEND      BIT (16) INIT ('2000'B4),
/*                                          EXTENDED LINE MODE */
/*                                                             */
      03         KCCARD        BIT (16) INIT ('4000'B4);
/*                                          NEXT INPUT FROM    */
/*                                          CARD READER        */
/*****************************************************************/
```

4.6 Data structure KCINFP

```
/*********************************************************************+**/
/*                                                                   +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992     +**/
/*                   ALL RIGHTS RESERVED                             +**/
/*                                                                   +**/
/*********************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0           +**/
/*********************************************************************/
/*                                                                    */
/*      RETURN INFORMATION OF INFO CALL                               */
/*                                                                    */
/*      FOR PLI1                    INCLUDE:   KCINFP                 */
/*********************************************************************/

         03         KCINFP,
           05       KCRETINF       CHAR (65);
                                       /*   MAX SIZE OF RETURN INFO */
/*********************************************************************/
/* RETURN INFORMATION FOR KCOM=DT                                    */
/*********************************************************************/
DCL    01           KCDATTIM       DEFINED KCRETINF,
             07     KCDTAS,
                                            /* DATE/TIME OF      */
                                            /* APPLICATION START */
               09   KCDATAS,
                                            /* DATE:             */
                 11 KCTAGAS        CHAR (2),  /* DAY               */
                 11 KCMONAS        CHAR (2),  /* MONTH             */
                 11 KCJHRAS        CHAR (2),  /* YEAR              */
                 11 KCTJHAS        CHAR (3),  /* DAY OF YEAR       */
               09   KCUHRAS,
                                            /* TIME:             */
                 11 KCSTDAS        CHAR (2),  /* HOUR              */
                 11 KCMINAS        CHAR (2),  /* MINUTE            */
                 11 KCSEKAS        CHAR (2),  /* SECOND            */

/* * * *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  **/
             07     KCDTAK,
                                            /* DATE/TIME OF      */
                                            /* PROGRAM START     */
               09   KCDATAK,
                                            /* DATE:             */
                 11 KCTAGAK        CHAR (2),  /* DAY               */
                 11 KCMONAK        CHAR (2),  /* MONTH             */
                 11 KCJHRAK        CHAR (2),  /* YEAR              */
                 11 KCTJHAK        CHAR (3),  /* DAY OF YEAR       */
               09   KCUHRAK,
                                            /* TIME:             */
                 11 KCSTDAK        CHAR (2),  /* HOUR              */
                 11 KCMINAK        CHAR (2),  /* MINUTE            */
                 11 KCSEKAK        CHAR (2),  /* SECOND            */

             07     FILLER_1       CHAR (35); /* NOT USED          */

/*********************************************************************/
/*  RETURN INFORMATION FOR KCOM=SI                                   */
```

```
/*****************************************************************/
DCL     01          KCSYSINF       BASED (ADDR (KCINFP)),
                                           /* SYSTEM-INFORMATION*/
             07     KCAPPLNM       CHAR (8),   /* APPLICATION NAME  */
             07     KCHOSTNM       CHAR (8),   /* HOST NAME         */
             07     KCPTRMNM       CHAR (8),   /* PTRM NAME         */
             07     KCPRONM        CHAR (8),   /* PROCESSOR NAME    */
             07     KCBCAPNM       CHAR (8),   /* BCAM APPLNAME     */
             07     KCVERS         CHAR (6),   /* UTM-VERSION       */
             07     KCIVER         BIN FIXED (15,0) UNAL,
                                           /* INTERFACE VERSION */
             07     KCIVAR         CHAR (1),   /* BS2 OR SINIX      */
             07     FILLER_2       CHAR (16);  /* NOT USED          */
/*****************************************************************/
/*  RETURN INFORMATION FOR KCOM=PC                               */
/*****************************************************************/
DCL     01          KCPREINF             DEFINED KCRETINF,
                                           /* INFO ON PREDECESS-*/
                                           /* OR CONVERSATION   */
             07     KCPFN          CHAR (8),   /* FORMAT NAME       */
             07     KCPNXTAC       CHAR (8),   /* NEXT TAC          */
             07     KCPCVTAC       CHAR (8),   /* CONVERSATION TAC  */
/* * * *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  */
             07     KCPLDATE,                   /* DATE OF LAST      */
                                           /* PROGRAM RUN       */
               09   KCPLDAY        CHAR (2),   /* DAY               */
               09   KCPLMON        CHAR (2),   /* MONTH             */
               09   KCPLYEAR       CHAR (2),   /* YEAR              */
               09   KCPLDOY        CHAR (3),   /* DAY OF YEAR       */
/* * * *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  */
             07     KCPLTIME,                   /* TIME OF LAST      */
                                           /* PROGRAM RUN       */
               09   KCPLHOUR       CHAR (2),   /* HOUR              */
               09   KCPLMIN        CHAR (2),   /* MINUTE            */
               09   KCPLSEC        CHAR (2),   /* SECOND            */
/* * * *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  */
             07     FILLER_3       CHAR (26);  /* NOT USED          */
/*************************************************************/
/*  RETURN INFORMATION FOR KCOM=LO                           */
/*************************************************************/
DCL     01          KCLOCINF       BASED  (ADDR (KCINFP)),
                                           /* LOCALE INFORMATION*/
             07     KCLTLOC,                    /* LOCALE OF         */
                                           /*   SPECIFIED LTERM */
               09   KCLTLANG       CHAR(2),    /*   LANGUAGE ID     */
               09   KCLTTERR       CHAR(2),    /*   TERRITORY ID    */
               09   KCLTCCSN       CHAR(8),    /*   CODED CHARACTER */
                                           /*        SET NAME   */
             07     LOCFIL1        CHAR(8),    /*   UNUSED          */
             07     KCAPLOC,                    /* LOCALE OF         */
                                           /*   APPLICATION     */
               09   KCAPLANG       CHAR(2),    /*   LANGUAGE ID     */
               09   KCAPTERR       CHAR(2),    /*   TERRITORY ID    */
               09   KCAPCCSN       CHAR(8),    /*   CODED CHARACTER */
                                           /*        SET NAME   */
             07     LOCFIL2        CHAR(8),    /*   UNUSED          */
             07     KCCSINFO,                   /* INFO NECESSARY    */
                                           /* FOR XHCS SUPPORT  */
               09   KCDEFCCS       CHAR(8),    /* SYSTEM/USERID CCS */
               09   KCCCSNO        BIT(8),     /* NO OF SUPPORT CCS */
```

```
                09   KCCCSTAB,                  /* LIST OF SUPPORTED */
                                                /*   CODED CHAR SETS */
                  11 KCVAR1         BIT(8),     /* ISO VAR OF 1. CCS */
                  11 KCVAR2         BIT(8),     /* ISO VAR OF 2. CCS */
                  11 KCVAR3         BIT(8),     /* ISO VAR OF 3. CCS */
                  11 KCVAR4         BIT(8),     /* ISO VAR OF 4. CCS */
                  11 KCVAR5         BIT(8),     /* ISO VAR OF 5. CCS */
                  11 KCVAR6         BIT(8),     /* ISO VAR OF 6. CCS */
                  11 KCVAR7         BIT(8),     /* ISO VAR OF 7. CCS */
                  11 KCVAR8         BIT(8),     /* ISO VAR OF 8. CCS */
                  11 KCVAR9         BIT(8),     /* ISO VAR OF 7. CCS */
                  11 KCVAR10        BIT(8),     /* ISO VAR OF 10. CCS*/
                  11 KCVAR11        BIT(8),     /* ISO VAR OF 11. CCS*/
                  11 KCVAR12        BIT(8),     /* ISO VAR OF 12. CCS*/
                  11 KCVAR13        BIT(8),     /* ISO VAR OF 13. CCS*/
                  11 KCVAR14        BIT(8),     /* ISO VAR OF 14. CCS*/
                  11 KCVAR15        BIT(8),     /* ISO VAR OF 15. CCS*/
                  11 KCVAR16        BIT(8);     /* ISO VAR OF 16. CCS*/
              /*********************************************************************/
```

4.7 Data structure KCINIP

```
/*********************************************************************+**/
/*                                                                   +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1993     +**/
/*                   ALL RIGHTS RESERVED                             +**/
/*                                                                   +**/
/*********************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0           +**/
/*********************************************************************/
/*                                                                   */
/*      RETURN INFORMATION OF INIT PU CALL                           */
/*                                                                   */
/*      FOR PLI1                    INCLUDE:   KCINIP                */
/*********************************************************************/

DCL    01           KCINIC,
/*********************************************************************/
/* INPUT  INFORMATION FOR KCOM=PU                                    */
/*********************************************************************/
         03         KCINPUT,
           05       KCVER      BIN FIXED (15,0) UNAL, /* VERSION 1  */
           05       KCDATE     CHAR(1), /* DATE AND TIME INFO (Y/N) */
           05       KCAPPL     CHAR(1), /* APPLICATION   INFO (Y/N) */
           05       KCLOCALE   CHAR(1), /* LOCALE        INFO (Y/N) */
           05       KCOSITP    CHAR(1), /* OSI TP        INFO (Y/N) */
           05       KCFILLIN   CHAR(10),/* NOT USED                 */
/*********************************************************************/
/* OUTPUT INFORMATION FOR KCOM=PU                                    */
/*********************************************************************/
         03         KCOUTPUT,
/* GENERAL INFORMATION              GENERATED MAXIMAL LENGTH OF      */
           05       KCGPAB     BIN FIXED(15,0) UNAL, /* SPAB        */
           05       KCGNB      BIN FIXED(15,0) UNAL, /* NB          */
/* TIME AND DATE INFORMATION                                         */
           05       KCDTTM,
             07     KDADTTM,                  /* APPLICATION START */
               09   KCADATE,                  /* DATE:             */
                 11 KCADAY         CHAR (2),  /* DAY               */
                 11 KCAMONTH       CHAR (2),  /* MONTH             */
                 11 KCAYEAR        CHAR (4),  /* YEAR              */
                 11 KCADOY         CHAR (3),  /* DAY OF YEAR       */
               09   KCATIME,                  /* TIME:             */
                 11 KCAHOUR        CHAR (2),  /* HOUR              */
                 11 KCAMIN         CHAR (2),  /* MINUTE            */
                 11 KCASEK         CHAR (2),  /* SECOND            */
               09   KCASEAS         CHAR (1),  /* SEASON            */
                                               /*                   */
             07     KDPDTTM,                  /* PROGRAM     START */
               09   KCPDATE,                  /* DATE:             */
                 11 KCPDAY         CHAR (2),  /* DAY               */
                 11 KCPMONTH       CHAR (2),  /* MONTH             */
                 11 KCPYEAR        CHAR (4),  /* YEAR              */
                 11 KCPDOY         CHAR (3),  /* DAY OF YEAR       */
               09   KCPTIME,                  /* TIME:             */
                 11 KCPHOUR        CHAR (2),  /* HOUR              */
                 11 KCPMIN         CHAR (2),  /* MINUTE            */
                 11 KCPSEK         CHAR (2),  /* SECOND            */
```

```
              09   KCPSEAS        CHAR (1),   /* SEASON            */
                                               /*                   */
              09   KCTMZONE       CHAR(12),   /* TIME ZONE         */
/*  APPLICATION INFORMATION                                        */
          05       KCAPINF,                   /*                   */
            07     KCAPPLNM       CHAR (8),   /* APPLICATION NAME  */
            07     KCHOSTNM       CHAR (8),   /* HOST NAME         */
            07     KCPTRMNM       CHAR (8),   /* PTRM NAME         */
            07     KCPRONM        CHAR (8),   /* PROCESSOR NAME    */
            07     KCBCAPNM       CHAR (8),   /* BCAM APPLNAME     */
            07     KCVERS         CHAR (6),   /* UTM-VERSION       */
            07     KCIVER         BIN FIXED (15,0) UNAL,
                                               /* INTERFACE VERSION */
            07     KCIVAR         CHAR (1),   /* BS2 OR SINIX      */
            07     FILLER_2       CHAR (1),   /* NOT USED          */
/*  LOCALE INFORMATION FOR KCOM=LO                          */
          05       KCLOCINF,
            07     KCUSLOC,                   /* LOCALE OF USER    */
              09   KCUSLANG       CHAR(2),    /*   LANGUAGE ID     */
              09   KCUSTERR       CHAR(2),    /*   TERRITORY ID    */
              09   KCUSCCSN       CHAR(8),    /*   CODED CHARACTER */
            07 FILLER_3           CHAR(8),    /*        SET NAME   */
            07 KCCSINFO,                       /* INFO NECESSARY    */
                                               /* FOR XHCS SUPPORT  */
              09   KCCURCCS       CHAR(8),    /* CCCSN OF CURR MSG */
              09   KCDEVCAP       BIT(8),     /* 247("7")/248("8") */
            07 FILLER_4           CHAR(1)     /* NOT USED          */
/*  OSI TP INFORMATION                                             */
         ,05       KCOSIINF,
            07     KCFUPOL    CHAR(1),/* POLARIZED/SHARED FU (Y/N) */
            07     KCFUHSH    CHAR(1),/* HANDSHAKE        FU (Y/N) */
            07     KCFUCOM    CHAR(1),/* COMMIT           FU (Y/N) */
            07     KCFUCHN    CHAR(1),/* CHAINED/UNCHAIN. FU (Y/N) */
            07     KCENDTA    CHAR(1),/* END TA HANDLING           */
            07     KCSEND     CHAR(1),/* MPUT TO SUPERIOR    (Y/N) */
            07     FILLER_OSI CHAR(2) /*                           */
        ;
/*****************************************************************/
```

4.8 Data structure KCINPP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*      KCINPP       VER=400       900810   51311306                */
    /*****************************************************************/
DCL   01             KCINPUTP,
    /*****************************************************************/
    /*    PARAMETER AREA FOR INPUT-EXIT                              */
    /*                                                               */
    /*                                          COPY:  KCINPP        */
    /*****************************************************************/
          03         KCIFCH       CHAR (8),
    /*                                          FIRST 8 CHARACTERS   */
    /*                                          OF INPUT MESSAGE     */
          03         KCIFN        CHAR (8),
    /*                                          FORMAT NAME          */
          03         KCICVTAC     CHAR (8),
    /*                                          CONVERSATION TAC     */
          03         KCICVST      CHAR(2),
    /*                                          CONVERSATION STATE   */
          03         KCIFKEY      FIXED BIN (15,0),
    /*                                          F-KEY                */
          03         KCIKKEY      FIXED BIN (15,0),
    /*                                          K-KEY                */
          03         KCICFINF     CHAR(2),
    /*                                          CONTROL FIELD        */
    /*                                          INFORMATION          */
          03         KCILTERM     CHAR (8),
    /*                                          CURRENT LTERM        */
          03         KCIUSER      CHAR (8),
    /*                                          CURRENT USER         */
          03         FILLER_1     CHAR (32),
    /*                                          RESERVED             */
          03         KCINTAC,
    /*                                          NEXT TAC             */
            05       KCINCMD      CHAR (8),
    /*                                          NEXT COMMAND         */
          03         KCICCD       CHAR(2),
    /*                                          CONTINUATION CODE    */
          03         KCICUT       CHAR(1),
    /*                                          CUT TAC  (Y/N)       */
          03         FILLER_2     CHAR(1),
    /*                                          RESERVED             */
          03         KCIERRCD     CHAR (4),
    /*                                          ERROR CODE           */
          03         FILLER_3     CHAR (44);
    /*                                          RESERVED             */
```

4.9 Data structure KCKBP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
/*                   ALL RIGHTS RESERVED                          +**/
/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*****************************************************************/
/*    KDCS COMMUNICATION AREA (KB)                               */
/*    FOR PLI1                  INCLUDE:   KCKBP                 */
/*                                                               */
/*****************************************************************/
/*        KDCS KB HEADER                                         */
/*****************************************************************/
DCL 01          KCRSIGN      DEFINED KCRINFCC,
                                     /*    STATUS OF SIGN-ON:    */
          07    KCRSIGN1     CHAR (1),
                                     /*    PRIMARY CODE          */
          07    KCRSIGN2     CHAR (2);
                                     /*    SECONDARY CODE        */
DCL 01          KCRSTAT      DEFINED KCRINFCC,
          07    KCRSTATE     CHAR (2),
                                     /*    CONVERSATION AND      */
                                     /*    TRANSACTION STATUS    */
          07    KCRMGT       CHAR (1);
                                     /*    RETURN INFO MGET      */
DCL 01          KCRST        DEFINED KCRINFCC,
          07    KCVGST       CHAR (1),
                                     /*    CONVERSATION STATUS   */
          07    KCTAST       CHAR (1),
                                     /*    TRANSACTION STATUS    */
          07    FILLER_5     CHAR (1);
                                     /*    NOT USED              */
DCL 01          KCRUSER      DEFINED KCRPI,
          07    KCRUS        CHAR (8);
                                     /*    RTEURN USER (SIGN ST) */
DCL 01          KCKBP,
      03        KCKBKOPF,
                                     /*    HEADER OF KDCS        */
                                     /*    COMMUNICATION AREA    */
        05      KCBENID      CHAR (8),
                                     /*    USER IDENTIFICATION   */
        05      KCVORG,
                                     /*    CONVERSATION-SPECIFIC */
                                     /*    DATA FIELDS           */
          07    KCTACVG      CHAR (8),
                                     /*    TRANSACTION CODE      */
          07    KCDATVG,
                                     /*    DATE:                 */
            09  KCTAGVG      CHAR (2),
                                     /*    DAY                   */
            09  KCMONVG      CHAR (2),
                                     /*    MONTH                 */
            09  KCJHRVG      CHAR (2),
```

```
                                    /*    YEAR                    */
          09  KCTJHVG      CHAR (3),
                                    /*    DAY OF YEAR             */
        07    KCUHRVG,
                                    /*    TIME:                   */
          09  KCSTDVG      CHAR (2),
                                    /*    HOUR                    */
          09  KCMINVG      CHAR (2),
                                    /*    MINUTE                  */
          09  KCSEKVG      CHAR (2),
                                    /*    SECOND                  */
        07    KCKNZVG       CHAR (1),
                                    /*    CONVERSATION ID         */
      05      KCAKTUEL,
                                    /*    DATA SPECIFIC TO        */
                                    /*    CURRENT PROGRAM RUN:    */
        07    KCTACAL       CHAR (8),
                                    /*    TRANSACTION CODE        */
        07    KCUHRAL,
                                    /*    TIME:                   */
          09  KCSTDAL      CHAR (2),
                                    /*    HOUR                    */
          09  KCMINAL      CHAR (2),
                                    /*    MINUTE                  */
          09  KCSEKAL      CHAR (2),
                                    /*    SECOND                  */
        07    KCAUSWEIS     CHAR (1),
                                    /*    A = CARD IN READER      */
        07    KCTAIND       CHAR (1),
                                    /*    TRANSACTION INDICATOR */
      05      KCLOGTER      CHAR (8),
                                    /*    NAME OF UTM TERMINAL    */
                                    /*           (= LTERM)        */
      05      KCTERMN       CHAR (2),
                                    /*    DEVICE TYPE OF          */
                                    /*    PHYSICAL TERMINAL       */
      05      KCLKBPB       FIXED BIN (15,0) UNAL,
                                    /*    MAXIMUM LENGTH OF       */
                                    /*    KB-PROGRAM AREA         */
/*****************************************************************/
      05      KCSTA,
                                    /*    STACK INFORMATION:      */
        07    KCHSTA        BIT (16),
                                    /*    CURRENT STACK LEVEL     */
        07    KCDSTA        CHAR (1),
                                    /*    CHANGE IN STACK LEVEL */
        07    FILLER_1      CHAR (1),
                                    /*    NOT USED                */
      05      KCPRIND       CHAR (1),
                                    /*    PROGRAM INDICATOR       */
      05      KCOF1         CHAR (1),
                                    /*    OSI-TP FUNCTION1        */
      05      KCOF2         CHAR (1),
                                    /*    OSI-TP FUNCTION2        */
      05      KCTARB        CHAR (1),
                                    /*    TA IS MARKED ROLLBACK */
      05      KCYEARVG      CHAR (4),
                                    /*  YEAR START CONVERSATION */
      05      FILLER_6      CHAR (12),
                                    /*    NOT USED                */
```

```
/*****************************************************************/
/*        KDCS RETURN AREA                                       */
/*****************************************************************/
      03        KCRFELD,
                                    /*    KDCS RETURN AREA      */
                                /*   CONTAINS RETURN INFO FROM UTM */
        05      KCRI,
                                    /*    RETURN IDENTIFICATION */
                                    /*    (NOT USED)            */
          07    KCRDF         BIT (16),
                                    /*    RETURN DEVICE FEATURE */
        05      KCRLM         FIXED BIN (15,0) UNAL,
                                    /*    RETURN LENGTH         */
        05      KCRINFCC      CHAR (3),
                                    /*   INFO CALL ERROR CODE   */
        05      FILLER_3      CHAR (1),
                                    /*    NOT USED              */
        05      KCRC,
                                    /*    RETURN CODES:         */
          07    KCRCCC        CHAR (3),
                                    /*    KDCS ERROR CODE       */
          07    KCRCKZ        CHAR (1),
                                    /*    INDICATOR             */
                                    /*    P=PRODUCTION, T=UTM-T */
          07    KCRCDC        CHAR (4),
                                    /*    ADDITIONAL ERROR CODE */
                                    /* FROM UTM (NOT COMPATIBLE)*/
        05      KCRMF         CHAR (8),
                                    /*    RETURN MESSAGE FORMAT */
        05      KCRPI         CHAR (8),
                                    /*    RETURN CONVERSATION ID*/
/*                                                               */
/*****************************************************************/
/*        KDCS KB PROGRAM AREA                                   */
/*****************************************************************/
      03        KCKBPRG,
```

4.10 Data structure KCMSGP

```
/*****************************************************************/
  /**                                                             **/
  /**  COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  **/
  /**                ALL RIGHTS RESERVED                          **/
  /**                                                             **/
  /*****************************************************************/
  /**  SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM ....        **/
  /*****************************************************************/
  /**                                                             **/
  /**   Layout of UTM-messages            UTM (BS2000)  V04.0     **/
  /**                                     KCMSGP        16.07.1996 **/
  /*****************************************************************/
      03      KCMSGP,
     /*                                                           */
      05      MSGKOPF,
     /*                                  MESSAGE HEADER           */
          07  FILLER_1    CHAR (1),
     /*                                  FILLER                   */
          07  MSGNR       CHAR (4),
     /*                                  MESSAGE NUMBER           */
          07  FILLER_2    CHAR (1),
     /*                                  FILLER                   */
          07  MSGDATE     CHAR (11),
     /*                                  DATE OF ORIGIN           */
     /*                                  (MM/DD/YYJJJ)            */
          07  FILLER_3    CHAR (1),
     /*                                  FILLER                   */
          07  MSGTIME     CHAR (6),
     /*                                  TIME OF ORIGIN (HHMMSSS) */
          07  MSGYEAR     CHAR (4),
     /*                                  YEAR OF ORIGIN (YYYY)    */
     /*****************************************************************/
     /* INSERTS OF MESSAGES                                       */
     /*****************************************************************/
      05      KXXX        CHAR (152);
     /*                                                           */
     DCL  01  K001        DEFINED      KXXX,
     /*                                                           */
          07  PTRM        CHAR (008),
     /*                                  PTERM NAME               */
          07  PRNM        CHAR (008),
     /*                                  PROCESSOR NAME           */
          07  BCAP        CHAR (008),
     /*                                  BCAM APPLICATION NAME    */
          07  LTRM        CHAR (008),
     /*                                  LTERM NAME               */
          07  APPL        CHAR (008),
     /*                                  APPLICATION NAME         */
        07    TEXT        CHAR (112);
     /*                                                           */
     DCL  01  K002        DEFINED      KXXX,
     /*                                                           */
          07  PTRM        CHAR (008),
     /*                                  PTERM NAME               */
          07  PRNM        CHAR (008),
     /*                                  PROCESSOR NAME           */
```

```
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  APPL        CHAR (008),
/*                                  APPLICATION NAME            */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K003        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  CMD         CHAR (008),
/*                                  COMMAND NAME                */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K004        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K005        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K006        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
```

```
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                             */
DCL  01  K007        DEFINED       KXXX,
/*                                                             */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME                  */
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                             */
DCL  01  K008        DEFINED       KXXX,
/*                                                             */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME                  */
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                             */
DCL  01  K009        DEFINED       KXXX,
/*                                                             */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME                  */
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME      */
     07  TAC         CHAR (008),
/*                                 TRANSACTION CODE            */
   07    TEXT        CHAR (104);
/*                                                             */
DCL  01  K010        DEFINED       KXXX,
/*                                                             */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME                  */
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME      */
```

```
     07  TAC          CHAR (008),
/*                                  TRANSACTION CODE            */
   07    TEXT         CHAR (104);
/*                                                              */
DCL  01  K011         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
     07  ATAC         CHAR (008),
/*                                  ASYNCHRONOUS TAC            */
   07    TEXT         CHAR (104);
/*                                                              */
DCL  01  K013         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  CMD          CHAR (008),
/*                                  COMMAND NAME                */
   07    TEXT         CHAR (112);
/*                                                              */
DCL  01  K014         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT         CHAR (112);
/*                                                              */
DCL  01  K015         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
```

```
     07  TAC          CHAR (008),
/*                                  TRANSACTION CODE            */
     07  FORM         CHAR (008),
/*                                  FORMAT NAME (FOR K015       */
/*                                  ONLY)                       */
     07  RCDC         CHAR (004),
/*                                  KCRCDC                      */
     07  RCF2         CHAR (004),
/*                                  SECONDARY FHS/VTSU RET      */
/*                                  CODE                        */
   07    TEXT         CHAR (088);
/*                                                              */
DCL  01  K016         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT         CHAR (112);
/*                                                              */
DCL  01  K017         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME                  */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
     07  TCVG         CHAR (008),
/*                                  CONVERSATION TAC            */
     07  RCCC         CHAR (003),
/*                                  KCRCCC                      */
     07  RCDC         CHAR (004),
/*                                  KCRCDC                      */
     07  RCF2         CHAR (004),
/*                                  SECONDARY FHS/VTSU RET      */
/*                                  CODE                        */
     07  TAC          CHAR (008),
/*                                  TRANSACTION CODE            */
   07    TEXT         CHAR (085);
/*                                                              */
DCL  01  K018         DEFINED       KXXX,
/*                                                              */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM         CHAR (008),
```

```
/*                                    LTERM NAME                */
     07  APPL        CHAR (008),
/*                                    APPLICATION NAME          */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K019        DEFINED          KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                    PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                    PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                    BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                    LTERM NAME                */
     07  APPL        CHAR (008),
/*                                    APPLICATION NAME          */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K020        DEFINED          KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                    PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                    PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                    BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                    LTERM NAME                */
     07  USER        CHAR (008),
/*                                    USER/LSES/OSI-ASS NAME    */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K021        DEFINED          KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                    PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                    PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                    BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                    LTERM NAME                */
   07    TEXT        CHAR (120);
/*                                                              */
DCL  01  K022        DEFINED          KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                    PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                    PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                    BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                    LTERM NAME                */
   07    TEXT        CHAR (120);
/*                                                              */
DCL  01  K023        DEFINED          KXXX,
/*                                                              */
     07  OMSG        CHAR (074),
```

```
/*                                      BROADCAST MESSAGE          */
   07    TEXT        CHAR (078);
/*                                                                 */
DCL  01  K024        DEFINED          KXXX,
/*                                                                 */
     07  PTRM        CHAR (008),      PTERM NAME                 */
/*
     07  PRNM        CHAR (008),      PROCESSOR NAME             */
/*
     07  BCAP        CHAR (008),      BCAM APPLICATION NAME      */
/*
     07  LTRM        CHAR (008),      LTERM NAME                 */
/*
     07  USER        CHAR (008),      USER/LSES/OSI-ASS NAME     */
/*
   07    TEXT        CHAR (112);
/*                                                                 */
DCL  01  K025        DEFINED          KXXX,
/*                                                                 */
     07  PTRM        CHAR (008),      PTERM NAME                 */
/*
     07  PRNM        CHAR (008),      PROCESSOR NAME             */
/*
     07  BCAP        CHAR (008),      BCAM APPLICATION NAME      */
/*
     07  LTRM        CHAR (008),      LTERM NAME                 */
/*
   07    TEXT        CHAR (120);
/*                                                                 */
DCL  01  K026        DEFINED          KXXX,
/*                                                                 */
     07  PTRM        CHAR (008),      PTERM NAME                 */
/*
     07  PRNM        CHAR (008),      PROCESSOR NAME             */
/*
     07  BCAP        CHAR (008),      BCAM APPLICATION NAME      */
/*
     07  LTRM        CHAR (008),      LTERM NAME                 */
/*
     07  USER        CHAR (008),      USER/LSES/OSI-ASS NAME     */
/*
   07    TEXT        CHAR (112);
/*                                                                 */
DCL  01  K027        DEFINED          KXXX,
/*                                                                 */
     07  PTRM        CHAR (008),      PTERM NAME                 */
/*
     07  PRNM        CHAR (008),      PROCESSOR NAME             */
/*
     07  BCAP        CHAR (008),      BCAM APPLICATION NAME      */
/*
     07  LTRM        CHAR (008),      LTERM NAME                 */
/*
   07    TEXT        CHAR (120);
/*                                                                 */
DCL  01  K029        DEFINED          KXXX,
/*                                                                 */
     07  PTRM        CHAR (008),      PTERM NAME                 */
/*
     07  PRNM        CHAR (008),
```

```
/*                                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                                              */
DCL  01  K030        DEFINED      KXXX,
/*                                                                              */
     07  PTRM        CHAR (008),
/*                                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                                              */
DCL  01  K031        DEFINED      KXXX,
/*                                                                              */
     07  PTRM        CHAR (008),
/*                                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                                              */
DCL  01  K032        DEFINED      KXXX,
/*                                                                              */
     07  CON         CHAR (008),
/*                                                  CONNECTION NAME             */
     07  PRNM        CHAR (008),
/*                                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                                  BCAM APPLICATION NAME       */
     07  LPAP        CHAR (008),
/*                                                  LPAP NAME                   */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
     07  RCF1        CHAR (003),
/*                                                  RETURN CODE 1               */
     07  RCF2        CHAR (004),
/*                                                  RETURN CODE 2               */
   07    TEXT        CHAR (105);
/*                                                                              */
DCL  01  K033        DEFINED      KXXX,
/*                                                                              */
     07  PTRM        CHAR (008),
/*                                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
```

```
/*                                  PROCESSOR NAME           */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME    */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME               */
     07  USER         CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME   */
     07  REST         CHAR (001),
/*                                  RESTART INDICATOR OF     */
/*                                  LTERM                    */
   07    TEXT         CHAR (111);
/*                                                           */
DCL  01  K036         DEFINED       KXXX,
/*                                                           */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME               */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME           */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME    */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME               */
     07  RSLT         CHAR (001),
/*                                  RESULT                   */
     07  REAS         CHAR (001),
/*                                  REASON                   */
   07    TEXT         CHAR (118);
/*                                                           */
DCL  01  K040         DEFINED       KXXX,
/*                                                           */
     07  WLEV         CHAR (001),
/*                                  WARN LEVEL OF PAGE POOL  */
   07    TEXT         CHAR (151);
/*                                                           */
DCL  01  K041         DEFINED       KXXX,
/*                                                           */
     07  WLEV         CHAR (001),
/*                                  WARN LEVEL OF PAGE POOL  */
   07    TEXT         CHAR (151);
/*                                                           */
DCL  01  K043         DEFINED       KXXX,
/*                                                           */
     07  DMSE         CHAR (004),
/*                                  DMS ERROR CODE           */
     07  FNAM         CHAR (054),
/*                                  FILE NAME                */
   07    TEXT         CHAR (094);
/*                                                           */
DCL  01  K045         DEFINED       KXXX,
/*                                                           */
     07  PTRM         CHAR (008),
/*                                  PTERM NAME               */
     07  PRNM         CHAR (008),
/*                                  PROCESSOR NAME           */
     07  BCAP         CHAR (008),
/*                                  BCAM APPLICATION NAME    */
     07  LTRM         CHAR (008),
/*                                  LTERM NAME               */
     07  PALT         CHAR (008),
/*                                  LTERM NAME PRINT ADMIN   */
```

```
/*                                       STATION                    */
     07  CID         CHAR (008),
/*                                       PRINTER CONTROL ID         */
   07    TEXT        CHAR (104);
/*                                                                  */
DCL  01  K046        DEFINED             KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                       PTERM NAME                 */
     07  PRNM        CHAR (008),
/*                                       PROCESSOR NAME             */
     07  BCAP        CHAR (008),
/*                                       BCAM APPLICATION NAME      */
     07  LTRM        CHAR (008),
/*                                       LTERM NAME                 */
     07  PALT        CHAR (008),
/*                                       LTERM NAME PRINT ADMIN     */
/*                                       STATION                    */
     07  CID         CHAR (008),
/*                                       PRINTER CONTROL ID         */
     07  DPID        CHAR (008),
/*                                       ASYNCHRONOUS MESSAGE ID    */
     07  ERPR        CHAR (001),
/*                                       PRINT ERROR CODE           */
     07  IMSG        CHAR (032),
/*                                       FIRST PART OF INPUT        */
/*                                       MESSAGE                    */
   07    TEXT        CHAR (063);
/*                                                                  */
DCL  01  K049        DEFINED             KXXX,
/*                                                                  */
     07  RCCC        CHAR (004),
/*                                       STARTUP ERROR CODE         */
   07    TEXT        CHAR (148);
/*                                                                  */
DCL  01  K050        DEFINED             KXXX,
/*                                                                  */
     07  APPL        CHAR (008),
/*                                       APPLICATION NAME           */
     07  VERS        CHAR (008),
/*                                       UTM VERSION                */
   07    TEXT        CHAR (136);
/*                                                                  */
DCL  01  K051        DEFINED             KXXX,
/*                                                                  */
     07  APPL        CHAR (008),
/*                                       APPLICATION NAME           */
     07  VERS        CHAR (008),
/*                                       UTM VERSION                */
   07    TEXT        CHAR (136);
/*                                                                  */
DCL  01  K052        DEFINED             KXXX,
/*                                                                  */
     07  TASK        CHAR (004),
/*                                       TSN OF UTM TASK            */
     07  APPL        CHAR (008),
/*                                       APPLICATION NAME           */
     07  PRGV        CHAR (004),
/*                                       PROGRAM VERSION IN CASE    */
/*                                       OF PROGRAM EXCHANGE        */
```

```
   07    TEXT        CHAR (136);
/*                                                                  */
DCL  01  K053        DEFINED      KXXX,
/*                                                                  */
     07  CNTR        CHAR (006),
/*                                NUMBER OF LPUT RECORDS            */
   07    TEXT        CHAR (146);
/*                                                                  */
DCL  01  K055        DEFINED      KXXX,
/*                                                                  */
     07  ATAC        CHAR (008),
/*                                ASYNCHRONOUS TAC                  */
     07  RCCC        CHAR (003),
/*                                KCRCCC                            */
     07  RCDC        CHAR (004),
/*                                KCRCDC                            */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME            */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
   07    TEXT        CHAR (121);
/*                                                                  */
DCL  01  K056        DEFINED      KXXX,
/*                                                                  */
     07  TASK        CHAR (004),
/*                                TSN OF UTM TASK                   */
   07    TEXT        CHAR (148);
/*                                                                  */
DCL  01  K058        DEFINED      KXXX,
/*                                                                  */
     07  TASK        CHAR (004),
/*                                TSN OF UTM TASK                   */
   07    TEXT        CHAR (148);
/*                                                                  */
DCL  01  K060        DEFINED      KXXX,
/*                                                                  */
     07  TRMA        CHAR (006),
/*                                TERM APPLICATION REASON           */
   07    TEXT        CHAR (146);
/*                                                                  */
DCL  01  K061        DEFINED      KXXX,
/*                                                                  */
     07  FNAM        CHAR (054),
/*                                FILE NAME                         */
   07    TEXT        CHAR (098);
/*                                                                  */
DCL  01  K063        DEFINED      KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                        */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME                    */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME             */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
     07  FMTN        CHAR (008),
/*                                FORMAT NAME                       */
     07  RCF1        CHAR (004),
/*                                KCRCDC                            */
```

```
     07  RCF2        CHAR (004),
/*                                SECONDARY FHS/VTSU RET      */
/*                                CODE                        */
   07    TEXT        CHAR (104);
/*                                                            */
DCL  01  K064        DEFINED      KXXX,
/*                                                            */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                  */
     07  DEVC        CHAR (001),
/*                                DEVICE TYPE                 */
     07  FIL1        CHAR (001),
/*                                APPLICATION STATE           */
     07  FIL2        CHAR (001),
/*                                LTERM STATE                 */
     07  FIL3        CHAR (002),
/*                                PTERM STATE                 */
     07  VTRC        CHAR (004),
/*                                VTSU OR ASECO RETURN CODE   */
     07  IMSG        CHAR (032),
/*                                FIRST PART OF INPUT         */
/*                                MESSAGE                     */
     07  REAS        CHAR (001),
/*                                REASON                      */
     07  CBRC        CHAR (004),
/*                                VTSUCB RETURN CODE          */
   07    TEXT        CHAR (074);
/*                                                            */
DCL  01  K065        DEFINED      KXXX,
/*                                                            */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                  */
     07  FIL1        CHAR (001),
/*                                BCAM REQUEST OR ANNO TYPE   */
/*                                / UTM ANNO TYPE             */
     07  FIL2        CHAR (004),
/*                                BCAM INFOWORD               */
   07    TEXT        CHAR (115);
/*                                                            */
DCL  01  K069        DEFINED      KXXX,
/*                                                            */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
```

```
/*                                      LTERM NAME                  */
     07  COTM        CHAR (004),
/*                                      ELAPSED CONNECTION TIME     */
/*                                      IN SECONDS                  */
     07  REAS        CHAR (001),
/*                                      DIAGNOSTIC INFORMATION      */
/*                                      (DISCONNECT REASON)         */
     07  REA6        CHAR (001),
/*                                      DIAGNOSTIC INFORMATION      */
/*                                      (DISCONNECT USER REASON)    */
   07    TEXT        CHAR (114);
/*                                                                  */
DCL  01  K070        DEFINED         KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                      PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                      PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                      BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                      LTERM NAME                  */
     07  USER        CHAR (008),
/*                                      USER/LSES/OSI-ASS NAME      */
     07  COTM        CHAR (004),
/*                                      ELAPSED CONNECTION TIME     */
/*                                      IN SECONDS                  */
     07  CPTM        CHAR (004),
/*                                      CPU TIME SINCE SIGN-ON IN   */
/*                                      MILLISECONDS                */
   07    TEXT        CHAR (104);
/*                                                                  */
DCL  01  K072        DEFINED         KXXX,
/*                                                                  */
     07  STMT        CHAR (011),
/*                                      STATEMENT OF KDCDEF         */
   07    TEXT        CHAR (141);
/*                                                                  */
DCL  01  K073        DEFINED         KXXX,
/*                                                                  */
     07  ATTR        CHAR (011),
/*                                      ATTRIBUT OF                 */
/*                                      LOAD-MODULE/PROGRAM         */
     07  STMT        CHAR (011),
/*                                      STATEMENT OF KDCDEF         */
     07  PROG        CHAR (032),
/*                                      PROGRAM OR LOAD MODULE      */
/*                                      NAME                        */
   07    TEXT        CHAR (098);
/*                                                                  */
DCL  01  K074        DEFINED         KXXX,
/*                                                                  */
     07  CTYP        CHAR (004),
/*                                      TYPE OF PROGRAM EXCHANGE    */
     07  PROG        CHAR (032),
/*                                      PROGRAM OR LOAD MODULE      */
/*                                      NAME                        */
     07  PVER        CHAR (024),
/*                                      PROGRAM VERSION             */
   07    TEXT        CHAR (092);
```

```
/*                                                                  */
DCL  01  KO75        DEFINED       KXXX,
/*                                                                  */
     07  CTYP        CHAR (004),
/*                                 TYPE OF PROGRAM EXCHANGE         */
     07  PROG        CHAR (032),
/*                                 PROGRAM OR LOAD MODULE           */
/*                                 NAME                             */
     07  PVER        CHAR (024),
/*                                 PROGRAM VERSION                  */
   07    TEXT        CHAR (092);
/*                                                                  */
DCL  01  KO76        DEFINED       KXXX,
/*                                                                  */
     07  RCCC        CHAR (003),
/*                                 KCRCCC                           */
     07  RCDC        CHAR (004),
/*                                 KCRCDC                           */
     07  ADTC        CHAR (008),
/*                                 ADMINISTRATION TAC               */
     07  USER        CHAR (008),
/*                                 USER/LSES/OSI-ASS NAME           */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME                       */
   07    TEXT        CHAR (121);
/*                                                                  */
DCL  01  KO79        DEFINED       KXXX,
/*                                                                  */
     07  REAS        CHAR (002),
/*                                 REASON                           */
   07    TEXT        CHAR (150);
/*                                                                  */
DCL  01  KO81        DEFINED       KXXX,
/*                                                                  */
     07  IMSG        CHAR (005),
/*                                 NUMBER OF TERMINAL INPUT         */
/*                                 MESSAGES                         */
     07  OMSG        CHAR (005),
/*                                 NUMBER OF TERMINAL OUTPUT        */
/*                                 MESSAGES                         */
     07  CONU        CHAR (005),
/*                                 NUMBER OF CONNECTED USERS        */
     07  ATAC        CHAR (005),
/*                                 NUMBER OF UNPROCESSED            */
/*                                 ASYNCHRONOUS TACS                */
     07  LWRT        CHAR (005),
/*                                 NUMBER OF USLOG FILE             */
/*                                 WRITES                           */
     07  HITR        CHAR (003),
/*                                 CACHE HIT RATE                   */
     07  WTBF        CHAR (003),
/*                                 CACHE WAITS FOR BUFFER           */
   07    TEXT        CHAR (121);
/*                                                                  */
DCL  01  KO86        DEFINED       KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME                       */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME                   */
```

```
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
     07  SYSD        CHAR (002),
/*                                  SYSTEM SENSE DATA           */
     07  USSD        CHAR (002),
/*                                  USER SENSE DATA             */
     07  FMH7        CHAR (080),
/*                                  ERROR RECOVERY PROCEDURE    */
/*                                  MESSAGE                     */
     07  AGUS        CHAR (008),
/*                                  JOB-SUBMITTING USER         */
   07    TEXT        CHAR (020);
/*                                                              */
DCL  01  KO88        DEFINED        KXXX,
/*                                                              */
     07  LSES        CHAR (008),
/*                                  LSES NAME                   */
     07  RSES        CHAR (008),
/*                                  RSES NAME                   */
     07  LPAP        CHAR (008),
/*                                  LPAP NAME                   */
     07  SRFG        CHAR (004),
/*                                  SAVED SESSION STATE         */
     07  PSQN        CHAR (004),
/*                                  SAVED PET SEQUENCE NUMBER   */
     07  ESQS        CHAR (004),
/*                                  SAVED SEQUENCE NUMBER       */
     07  EBSS        CHAR (004),
/*                                  SAVED BRACKET STATE         */
     07  ESQR        CHAR (005),
/*                                  ACTUAL REQUEST SEQUENCE     */
/*                                  NUMBER                      */
     07  ESRR        CHAR (005),
/*                                  ACTUAL RESPONSE SEQUENCE    */
/*                                  NUMBER                      */
     07  EBSR        CHAR (004),
/*                                  ACTUAL BRACKET STATE        */
   07    TEXT        CHAR (098);
/*                                                              */
DCL  01  KO89        DEFINED        KXXX,
/*                                                              */
     07  GNDA        CHAR (003),
/*                                  GENERATION DATE             */
/*                                  ASYNCHRONOUS MESSAGE        */
     07  GNTI        CHAR (008),
/*                                  GENERATION TIME             */
/*                                  ASYNCHRONOUS MESSAGE        */
     07  DEST        CHAR (008),
/*                                  DESTINATION OF              */
/*                                  ASYNCHRONOUS MSG            */
     07  GNUS        CHAR (008),
/*                                  USER NAME OF ASYNCHRON.     */
/*                                  MESSAGE GENERATION          */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
     07  DLDA        CHAR (003),
```

```
/*                                        DAY OF KDCS CALL PADM       */
/*                                        DL/DA                       */
     07  DLTI        CHAR (008),
/*                                        TIME OF KDCS CALL PADM      */
/*                                        DL/DA                       */
     07  CHAI        CHAR (003),
/*                                        CHAINED MESSAGE             */
/*                                        INFORMATION                 */
   07    TEXT        CHAR (103);
/*                                                                    */
DCL  01  K090        DEFINED       KXXX,
/*                                                                    */
     07  DEST        CHAR (008),
/*                                        DESTINATION OF              */
/*                                        ASYNCHRONOUS MSG            */
     07  USER        CHAR (008),
/*                                        USER/LSES/OSI-ASS NAME      */
     07  DLDA        CHAR (003),
/*                                        DAY OF KDCS CALL PADM       */
/*                                        DL/DA                       */
     07  DLTI        CHAR (008),
/*                                        TIME OF KDCS CALL PADM      */
/*                                        DL/DA                       */
   07    TEXT        CHAR (125);
/*                                                                    */
DCL  01  K091        DEFINED       KXXX,
/*                                                                    */
     07  PTRM        CHAR (008),
/*                                        PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                        PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                        BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                        LTERM NAME                  */
     07  USER        CHAR (008),
/*                                        USER/LSES/OSI-ASS NAME      */
     07  ASRC        CHAR (004),
/*                                        ASECO RETURN CODE (CHIP     */
/*                                        CARD MODULE)                */
   07    TEXT        CHAR (108);
/*                                                                    */
DCL  01  K092        DEFINED       KXXX,
/*                                                                    */
     07  PTRM        CHAR (008),
/*                                        PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                        PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                        BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                        LTERM NAME                  */
     07  USER        CHAR (008),
/*                                        USER/LSES/OSI-ASS NAME      */
     07  PAS1        CHAR (020),
/*                                        SPACE FOR PASSWORD          */
     07  PAS2        CHAR (020),
/*                                        SPACE FOR PASSWORD          */
     07  PAS3        CHAR (020),
/*                                        SPACE FOR PASSWORD          */
```

```
   07    TEXT        CHAR (052);
/*                                                                  */
DCL  01  K093        DEFINED      KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                        */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME                    */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME             */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME            */
     07  HSTA        CHAR (002),
/*                                HEIGHT OF STACK                   */
     07  MSTA        CHAR (002),
/*                                MAXIMUM STACK HEIGHT              */
   07    TEXT        CHAR (108);
/*                                                                  */
DCL  01  K094        DEFINED      KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                        */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME                    */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME             */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME            */
     07  RCF1        CHAR (003),
/*                                RETURN CODE 1                     */
   07    TEXT        CHAR (109);
/*                                                                  */
DCL  01  K097        DEFINED      KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                        */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME                    */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME             */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME            */
   07    TEXT        CHAR (112);
/*                                                                  */
DCL  01  K098        DEFINED      KXXX,
/*                                                                  */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                        */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME                    */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME             */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                        */
```

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     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
     07  RCF1        CHAR (004),
/*                                  RETURN CODE 1               */
     07  RCF2        CHAR (004),
/*                                  RETURN CODE 2               */
   07    TEXT        CHAR (104);
/*                                                              */
DCL  01  K101        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                              */
DCL  01  K104        DEFINED      KXXX,
/*                                                              */
     07  UTMD        CHAR (007),
/*                                  UTM-D EVENT                 */
     07  LSES        CHAR (008),
/*                                  LSES NAME                   */
     07  LPAP        CHAR (008),
/*                                  LPAP NAME                   */
     07  AGUS        CHAR (008),
/*                                  JOB-SUBMITTING USER         */
     07  OCVS        CHAR (001),
/*                                  OLD CONVERSATION STATE      */
     07  OTAS        CHAR (001),
/*                                  OLD TRANSACTION STATE       */
     07  ACTI        CHAR (006),
/*                                  SYSTEM ACTION               */
     07  NCVS        CHAR (001),
/*                                  NEW CONVERSATION STATE      */
     07  NTAS        CHAR (001),
/*                                  NEW TRANSACTION STATE       */
   07    TEXT        CHAR (111);
/*                                                              */
DCL  01  K105        DEFINED      KXXX,
/*                                                              */
     07  LSES        CHAR (008),
/*                                  LSES NAME                   */
     07  LPAP        CHAR (008),
/*                                  LPAP NAME                   */
     07  AGUS        CHAR (008),
/*                                  JOB-SUBMITTING USER         */
     07  SYST        CHAR (004),
/*                                  SYSTEM                      */
   07    TEXT        CHAR (124);
/*                                                              */
DCL  01  K106        DEFINED      KXXX,
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                  */
```

```
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME                */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME         */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                    */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME        */
     07  DEVC        CHAR (001),
/*                                  DEVICE TYPE                   */
     07  FIL1        CHAR (001),
/*                                  APPLICATION STATE             */
     07  FIL2        CHAR (001),
/*                                  LTERM STATE                   */
     07  FIL3        CHAR (002),
/*                                  PTERM STATE                   */
     07  VTRC        CHAR (004),
/*                                  VTSU OR ASECO RETURN CODE     */
     07  CBRC        CHAR (004),
/*                                  VTSUCB RETURN CODE            */
     07  OMSG        CHAR (032),
/*                                  FIRST PART OF OUTPUT          */
/*                                  MESSAGE                       */
     07  FMTN        CHAR (008),
/*                                  FORMAT NAME                   */
     07  CCSN        CHAR (008),
/*                                  CCSNAME                       */
   07    TEXT        CHAR (051);
/*                                                                */
DCL  01  K107        DEFINED       KXXX,
/*                                                                */
     07  TTYP        CHAR (008),
/*                                  TERMINAL TYPE                 */
   07    TEXT        CHAR (144);
/*                                                                */
DCL  01  K108        DEFINED       KXXX,
/*                                                                */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                    */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME                */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME         */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                    */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME        */
     07  ASRC        CHAR (004),
/*                                  ASECO RETURN CODE (CHIP       */
/*                                  CARD MODULE)                  */
   07    TEXT        CHAR (108);
/*                                                                */
DCL  01  K109        DEFINED       KXXX,
/*                                                                */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                    */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME                */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME         */
```

```
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                    */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME        */
     07  ASRC        CHAR (004),
/*                                  ASECO RETURN CODE (CHIP       */
/*                                  CARD MODULE)                  */
     07  ADFN        CHAR (016),
/*                                  ADF NAME                      */
   07    TEXT        CHAR (092);
/*                                                                */
DCL  01  K115        DEFINED      KXXX,
/*                                                                */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                    */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME                */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME         */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                    */
     07  SNPT        CHAR (008),
/*                                  MUX SESSION PTERM NAME        */
     07  SNPR        CHAR (008),
/*                                  MUX SESSION PROCESSOR         */
/*                                  NAME                          */
     07  SNLT        CHAR (008),
/*                                  MUX SESSION LTERM NAME        */
     07  CCC         CHAR (001),
/*                                  CONTXT MACRO: CONDITION       */
/*                                  CODE IN PCR FORMAT            */
     07  REAS        CHAR (001),
/*                                  REASON                        */
     07  ANNO        CHAR (032),
/*                                  ANNO RECEIVED                 */
   07    TEXT        CHAR (062);
/*                                                                */
DCL  01  K116        DEFINED      KXXX,
/*                                                                */
     07  PTRM        CHAR (008),
/*                                  PTERM NAME                    */
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME                */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME         */
     07  LTRM        CHAR (008),
/*                                  LTERM NAME                    */
     07  SNPT        CHAR (008),
/*                                  MUX SESSION PTERM NAME        */
     07  SNPR        CHAR (008),
/*                                  MUX SESSION PROCESSOR         */
/*                                  NAME                          */
     07  SNLT        CHAR (008),
/*                                  MUX SESSION LTERM NAME        */
     07  USER        CHAR (008),
/*                                  USER/LSES/OSI-ASS NAME        */
     07  REAS        CHAR (001),
/*                                  REASON                        */
   07    TEXT        CHAR (087);
/*                                                                */
```

```
DCL  01  K117        DEFINED      KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                */
     07  SNPT        CHAR (008),
/*                                MUX SESSION PTERM NAME    */
     07  SNPR        CHAR (008),
/*                                MUX SESSION PROCESSOR     */
/*                                NAME                      */
     07  SNLT        CHAR (008),
/*                                MUX SESSION LTERM NAME    */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME    */
     07  REAS        CHAR (001),
/*                                REASON                    */
   07    TEXT        CHAR (087);
/*                                                          */
DCL  01  K119        DEFINED      KXXX,
/*                                                          */
     07  OSLP        CHAR (008),
/*                                OSI-LPAP NAME             */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME    */
     07  TAC         CHAR (008),
/*                                TRANSACTION CODE          */
     07  DIA1        CHAR (004),
/*                                DIAGNOSTIC INFORMATION    */
     07  DIA2        CHAR (004),
/*                                DIAGNOSTIC INFORMATION    */
     07  DIA3        CHAR (004),
/*                                DIAGNOSTIC INFORMATION    */
   07    TEXT        CHAR (116);
/*                                                          */
DCL  01  K120        DEFINED      KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME    */
   07    TEXT        CHAR (112);
/*                                                          */
DCL  01  K121        DEFINED      KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME            */
     07  BCAP        CHAR (008),
```

```
/*                                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
     07  PAS1        CHAR (020),
/*                                                  SPACE FOR PASSWORD          */
     07  PAS2        CHAR (020),
/*                                                  SPACE FOR PASSWORD          */
     07  PAS3        CHAR (020),
/*                                                  SPACE FOR PASSWORD          */
     07  NUMD        CHAR (002),
/*                                                  NUMBER DAYS PASSWORD        */
/*                                                  VALID                       */
   07    TEXT        CHAR (050);
/*                                                                              */
DCL  01  K123        DEFINED                     KXXX,
/*                                                                              */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  TAC         CHAR (008),
/*                                                  TRANSACTION CODE            */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (128);
/*                                                                              */
DCL  01  K124        DEFINED                     KXXX,
/*                                                                              */
     07  RCXA        CHAR (004),
/*                                                  RETURNCODE XAP-TP           */
/*                                                  STARTFUNCTIONS              */
     07  PHAX        CHAR (014),
/*                                                  INIT or START/RESTART of    */
/*                                                  XAP-TP                      */
   07    TEXT        CHAR (134);
/*                                                                              */
DCL  01  K125        DEFINED                     KXXX,
/*                                                                              */
     07  PTRM        CHAR (008),
/*                                                  PTERM NAME                  */
     07  PRNM        CHAR (008),
/*                                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                                  BCAM APPLICATION NAME       */
     07  LTRM        CHAR (008),
/*                                                  LTERM NAME                  */
     07  USER        CHAR (008),
/*                                                  USER/LSES/OSI-ASS NAME      */
   07    TEXT        CHAR (112);
/*                                                                              */
DCL  01  K126        DEFINED                     KXXX,
/*                                                                              */
     07  SATR        CHAR (004),
/*                                                  SAT RETURNCODE              */
   07    TEXT        CHAR (148);
/*                                                                              */
DCL  01  K128        DEFINED                     KXXX,
/*                                                                              */
     07  CON         CHAR (008),
/*                                                  CONNECTION NAME             */
```

```
     07  PRNM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  BCAP        CHAR (008),
/*                                  BCAM APPLICATION NAME       */
     07  LPAP        CHAR (008),
/*                                  LPAP NAME                   */
     07  LSES        CHAR (008),
/*                                  LSES NAME                   */
     07  REAS        CHAR (001),
/*                                  REASON                      */
     07  RCDC        CHAR (004),
/*                                  KCRCDC                      */
     07  TAC         CHAR (008),
/*                                  TRANSACTION CODE            */
   07    TEXT        CHAR (099);
/*                                                              */
DCL  01  K130        DEFINED
/*                                  KXXX,                       */
     07  TPRI        CHAR (001),
/*                                                              */
     07  TASK        CHAR (004),
/*                                  EXTERNAL TASK-PRIORITY      */
   07    TEXT        CHAR (147);
/*                                  TSN OF UTM TASK             */
DCL  01  K135        DEFINED
/*                                                              */
     07  PTRM        CHAR (008),
/*                                  KXXX,                       */
     07  PRNM        CHAR (008),
/*                                                              */
     07  BCAP        CHAR (008),
/*                                  PTERM NAME                  */
     07  LTRM        CHAR (008),
/*                                  PROCESSOR NAME              */
     07  UPCR        CHAR (001),
/*                                  BCAM APPLICATION NAME       */
     07  UPCS        CHAR (002),
/*                                  LTERM NAME                  */
     07  UPCP        CHAR (004),
/*                                  UPIC ERROR REASON           */
   07    TEXT        CHAR (113);
/*                                  USRTNSR UPIC STATE          */
DCL  01  K137        DEFINED
/*                                  UPIC PROTOCOLL              */
     07  FNAM        CHAR (054),
/*                                                              */
   07    TEXT        CHAR (098);
/*                                  KXXX,                       */
DCL  01  K138        DEFINED
/*                                                              */
     07  FNAM        CHAR (054),
/*                                  FILE NAME                   */
   07    TEXT        CHAR (098);
/*                                                              */
DCL  01  K139        DEFINED
/*                                  KXXX,                       */
     07  FNAM        CHAR (054),
/*                                                              */
   07    TEXT        CHAR (098);
/*                                  FILE NAME                   */
                                                                */
```

```
DCL  01  K140        DEFINED       KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME               */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME           */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME    */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME               */
     07  MXP1        CHAR (004),
/*                                 MUX PROTOCOLLVERSION     */
/*                                 (LOWER BOUNDARY)         */
     07  MXP2        CHAR (004),
/*                                 MUX PROTOCOLLVERSION     */
/*                                 (UPPER BOUNDARY)         */
   07    TEXT        CHAR (112);
/*                                                          */
DCL  01  K141        DEFINED       KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME               */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME           */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME    */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME               */
     07  MXP1        CHAR (004),
/*                                 MUX PROTOCOLLVERSION     */
/*                                 (LOWER BOUNDARY)         */
   07    TEXT        CHAR (116);
/*                                                          */
DCL  01  K142        DEFINED       KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME               */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME           */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME    */
     07  LTRM        CHAR (008),
/*                                 LTERM NAME               */
     07  MXPT        CHAR (008),
/*                                 MUX PTERM                */
     07  MXPR        CHAR (008),
/*                                 MUX PROCESSOR            */
     07  MXLT        CHAR (008),
/*                                 MUX LTERM                */
   07    TEXT        CHAR (096);
/*                                                          */
DCL  01  K143        DEFINED       KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                 PTERM NAME               */
     07  PRNM        CHAR (008),
/*                                 PROCESSOR NAME           */
     07  BCAP        CHAR (008),
/*                                 BCAM APPLICATION NAME    */
     07  LTRM        CHAR (008),
```

```
/*                                     LTERM NAME                */
          07  STS1        CHAR (002),
/*                                     STSN-REQ SEQUENCE NUMBER  */
/*                                     RCV-CNT                   */
          07  STS2        CHAR (002),
/*                                     STSN-REQ SEQUENCE NUMBER  */
/*                                     SEND-CNT                  */
          07  STS3        CHAR (002),
/*                                     STSN-RSP SEQUENCE NUMBER  */
/*                                     SLU-PLU                   */
          07  STS4        CHAR (002),
/*                                     STSN-RSP SEQUENCE NUMBER  */
/*                                     PLU-SLU                   */
      07      TEXT        CHAR (112);
/*                                                               */
DCL  01  K144        DEFINED        KXXX,
/*                                                               */
          07  PTRM        CHAR (008),
/*                                     PTERM NAME                */
          07  PRNM        CHAR (008),
/*                                     PROCESSOR NAME            */
          07  BCAP        CHAR (008),
/*                                     BCAM APPLICATION NAME     */
          07  LTRM        CHAR (008),
/*                                     LTERM NAME                */
          07  DEVC        CHAR (001),
/*                                     DEVICE TYPE               */
          07  FIL1        CHAR (001),
/*                                     APPLICATION STATE         */
          07  FIL2        CHAR (001),
/*                                     LTERM STATE               */
          07  FIL3        CHAR (002),
/*                                     PTERM STATE               */
          07  VTRC        CHAR (004),
/*                                     VTSU OR ASECO RETURN CODE */
          07  CBRC        CHAR (004),
/*                                     VTSUCB RETURN CODE        */
          07  OMSG        CHAR (032),
/*                                     FIRST PART OF OUTPUT      */
/*                                     MESSAGE                   */
          07  FMTN        CHAR (008),
/*                                     FORMAT NAME               */
          07  CCSN        CHAR (008),
/*                                     CCSNAME                   */
      07      TEXT        CHAR (059);
/*                                                               */
DCL  01  K145        DEFINED        KXXX,
/*                                                               */
          07  PTRM        CHAR (008),
/*                                     PTERM NAME                */
          07  PRNM        CHAR (008),
/*                                     PROCESSOR NAME            */
          07  BCAP        CHAR (008),
/*                                     BCAM APPLICATION NAME     */
          07  LTRM        CHAR (008),
/*                                     LTERM NAME                */
          07  USER        CHAR (008),
/*                                     USER/LSES/OSI-ASS NAME    */
      07      TEXT        CHAR (112);
/*                                                               */
```

```
DCL  01  K146        DEFINED      KXXX,
/*                                                          */
     07  BCMO        CHAR (004),
/*                                BCMM-OPCODE               */
     07  BCMR        CHAR (004),
/*                                BCMM-RETURNCODE           */
     07  STDH        CHAR (008),
/*                                BS2000 STANDARDHEADER     */
     07  TASK        CHAR (004),
/*                                TSN OF UTM TASK           */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME     */
   07    TEXT        CHAR (124);
/*                                                          */
DCL  01  K147        DEFINED      KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME    */
   07    TEXT        CHAR (112);
/*                                                          */
DCL  01  K150        DEFINED      KXXX,
/*                                                          */
     07  PTRM        CHAR (008),
/*                                PTERM NAME                */
     07  PRNM        CHAR (008),
/*                                PROCESSOR NAME            */
     07  BCAP        CHAR (008),
/*                                BCAM APPLICATION NAME     */
     07  LTRM        CHAR (008),
/*                                LTERM NAME                */
     07  RSOA        CHAR (032),
/*                                RSO ANNO                  */
     07  RSOO        CHAR (001),
/*                                RSO ACTION                */
     07  RSOM        CHAR (007),
/*                                RSO ERROR MESSAGE         */
     07  RSOR        CHAR (004),
/*                                RSO RETURNCODE            */
     07  RSO2        CHAR (004),
/*                                RSO ASYN RETURNCODE       */
   07    TEXT        CHAR (072);
/*                                                          */
DCL  01  K151        DEFINED      KXXX,
/*                                                          */
     07  IDEF        CHAR (008),
/*                                RETURNCODE OF INVERSE     */
/*                                KDCDEF                    */
     07  DMSE        CHAR (004),
/*                                DMS ERROR CODE            */
     07  FNAM        CHAR (054),
/*                                FILE NAME                 */
   07    TEXT        CHAR (086);
```

```
/*                                                                  */
DCL  01  K152        DEFINED      KXXX,
/*                                                                  */
     07  COND        CHAR (003),
/*                                CONDITION                         */
     07  MTYP        CHAR (004),
/*                                MESSAGE TYPE                      */
     07  OSLP        CHAR (008),
/*                                OSI-LPAP NAME                     */
     07  USER        CHAR (008),
/*                                USER/LSES/OSI-ASS NAME            */
     07  LTAC        CHAR (008),
/*                                TAC OR LTAC                       */
     07  AAIS        CHAR (004),
/*                                ATOMIC ACTION IDENTIFIER          */
/*                                SIZE                              */
     07  AAID        CHAR (064),
/*                                ATOMIC ACTION IDENTIFIER          */
   07    TEXT        CHAR (053);
/*                                                                  */
DCL  01  P001        DEFINED      KXXX,
/*                                                                  */
     07  XPFU        CHAR (020),
/*                                CALLED OSI-TP FUNCTION            */
     07  XPRE        CHAR (004),
/*                                OSI-TP RETURN CODE                */
     07  XPER        CHAR (004),
/*                                OSI-TP ERROR CODE                 */
     07  XP1I        CHAR (004),
/*                                OSI-TP ADDITIONAL                 */
/*                                INFORMATION 1                     */
     07  XP2I        CHAR (004),
/*                                OSI-TP ADDITIONAL                 */
/*                                INFORMATION 2                     */
     07  XPCO        CHAR (004),
/*                                MESSAGE CORRELATOR NUMBER         */
   07    TEXT        CHAR (112);
/*                                                                  */
DCL  01  P002        DEFINED      KXXX,
/*                                                                  */
     07  XPFU        CHAR (020),
/*                                CALLED OSI-TP FUNCTION            */
     07  ACPN        CHAR (008),
/*                                ACCESS-POINT-NAME                 */
     07  OSLP        CHAR (008),
/*                                OSI-LPAP NAME                     */
     07  XPRE        CHAR (004),
/*                                OSI-TP RETURN CODE                */
     07  XPER        CHAR (004),
/*                                OSI-TP ERROR CODE                 */
     07  XP1I        CHAR (004),
/*                                OSI-TP ADDITIONAL                 */
/*                                INFORMATION 1                     */
     07  XP2I        CHAR (004),
/*                                OSI-TP ADDITIONAL                 */
/*                                INFORMATION 2                     */
     07  XPCO        CHAR (004),
/*                                MESSAGE CORRELATOR NUMBER         */
   07    TEXT        CHAR (096);
/*                                                                  */
```

```
DCL  01  P003        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                 ACCESS-POINT-NAME            */
     07  XPRJ        CHAR (004),
/*                                 OSI-TP ASSOCIATION REASON    */
/*                                 FOR REJECT                   */
     07  XPLT        CHAR (004),
/*                                 OSI-TP INVALID LENGTH        */
   07    TEXT        CHAR (136);
/*                                                              */
DCL  01  P004        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                 ACCESS-POINT-NAME            */
     07  OSLP        CHAR (008),
/*                                 OSI-LPAP NAME                */
     07  XPRJ        CHAR (004),
/*                                 OSI-TP ASSOCIATION REASON    */
/*                                 FOR REJECT                   */
   07    TEXT        CHAR (132);
/*                                                              */
DCL  01  P005        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                 ACCESS-POINT-NAME            */
     07  XPNS        CHAR (008),
/*                                 OSI-TP N-SEL OF PARTNER      */
     07  XPTS        CHAR (008),
/*                                 OSI-TP T-SEL OF PARTNER      */
     07  XPLS        CHAR (004),
/*                                 OSI-TP LENGTH S-SEL OF       */
/*                                 PARTNER                      */
     07  XPCS        CHAR (016),
/*                                 OSI-TP S-SEL OF PARTNER      */
/*                                 (CHAR)                       */
     07  XPHS        CHAR (016),
/*                                 OSI-TP S-SEL OF PARTNER      */
/*                                 (HEX)                        */
     07  XPLP        CHAR (004),
/*                                 OSI-TP LENGTH P-SEL OF       */
/*                                 PARTNER                      */
     07  XPCP        CHAR (016),
/*                                 OSI-TP P-SEL OF PARTNER      */
/*                                 (CHAR)                       */
     07  XPHP        CHAR (016),
/*                                 OSI-TP P-SEL OF PARTNER      */
/*                                 (HEX)                        */
   07    TEXT        CHAR (056);
/*                                                              */
DCL  01  P006        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                 ACCESS-POINT-NAME            */
     07  OSLP        CHAR (008),
/*                                 OSI-LPAP NAME                */
     07  XPOO        CHAR (004),
/*                                 OSI-TP OBJECT IDENTIFIER     */
/*                                 O                            */
     07  XP1O        CHAR (004),
```

```
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  1                           */
     07  XP2O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  2                           */
     07  XP3O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  3                           */
     07  XP4O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  4                           */
     07  XP5O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  5                           */
     07  XP6O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  6                           */
     07  XP7O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  7                           */
     07  XP8O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  8                           */
     07  XP9O        CHAR (004),
/*                                  OSI-TP OBJECT IDENTIFIER    */
/*                                  9                           */
   07    TEXT        CHAR (096);
/*                                                              */
DCL  01  P007        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                  ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                  OSI-LPAP NAME               */
     07  XPRE        CHAR (004),
/*                                  OSI-TP RETURN CODE          */
     07  XPER        CHAR (004),
/*                                  OSI-TP ERROR CODE           */
     07  XP1I        CHAR (004),
/*                                  OSI-TP ADDITIONAL           */
/*                                  INFORMATION 1               */
     07  XP2I        CHAR (004),
/*                                  OSI-TP ADDITIONAL           */
/*                                  INFORMATION 2               */
     07  XPCO        CHAR (004),
/*                                  MESSAGE CORRELATOR NUMBER   */
   07    TEXT        CHAR (116);
/*                                                              */
DCL  01  P008        DEFINED       KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                  ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                  OSI-LPAP NAME               */
     07  XPOS        CHAR (004),
/*                                  OSI-TP ASSOCIATION          */
/*                                  REFERENCE                   */
   07    TEXT        CHAR (132);
/*                                                              */
DCL  01  P009        DEFINED       KXXX,
```

```
/*                                                                  */
     07  ACPN        CHAR (008),
/*                                   ACCESS-POINT-NAME              */
     07  OSLP        CHAR (008),
/*                                   OSI-LPAP NAME                  */
     07  XPRJ        CHAR (004),
/*                                   OSI-TP ASSOCIATION REASON      */
/*                                   FOR REJECT                     */
     07  XPLT        CHAR (004),
/*                                   OSI-TP INVALID LENGTH          */
     07  XPOS        CHAR (004),
/*                                   OSI-TP ASSOCIATION             */
/*                                   REFERENCE                      */
   07    TEXT        CHAR (124);
/*                                                                  */
DCL  01  P010        DEFINED      KXXX,
/*                                                                  */
     07  ACPN        CHAR (008),
/*                                   ACCESS-POINT-NAME              */
     07  OSLP        CHAR (008),
/*                                   OSI-LPAP NAME                  */
     07  XPNS        CHAR (008),
/*                                   OSI-TP N-SEL OF PARTNER        */
     07  XPTS        CHAR (008),
/*                                   OSI-TP T-SEL OF PARTNER        */
     07  XPLS        CHAR (004),
/*                                   OSI-TP LENGTH S-SEL OF         */
/*                                   PARTNER                        */
     07  XPCS        CHAR (016),
/*                                   OSI-TP S-SEL OF PARTNER        */
/*                                   (CHAR)                         */
     07  XPHS        CHAR (016),
/*                                   OSI-TP S-SEL OF PARTNER        */
/*                                   (HEX)                          */
     07  XPLP        CHAR (004),
/*                                   OSI-TP LENGTH P-SEL OF         */
/*                                   PARTNER                        */
     07  XPCP        CHAR (016),
/*                                   OSI-TP P-SEL OF PARTNER        */
/*                                   (CHAR)                         */
     07  XPHP        CHAR (016),
/*                                   OSI-TP P-SEL OF PARTNER        */
/*                                   (HEX)                          */
     07  XPOS        CHAR (004),
/*                                   OSI-TP ASSOCIATION             */
/*                                   REFERENCE                      */
   07    TEXT        CHAR (044);
/*                                                                  */
DCL  01  P011        DEFINED      KXXX,
/*                                                                  */
     07  ACPN        CHAR (008),
/*                                   ACCESS-POINT-NAME              */
     07  OSLP        CHAR (008),
/*                                   OSI-LPAP NAME                  */
     07  XPOO        CHAR (004),
/*                                   OSI-TP OBJECT IDENTIFIER       */
/*                                   O                              */
     07  XP1O        CHAR (004),
/*                                   OSI-TP OBJECT IDENTIFIER       */
/*                                   1                              */
```

```
     07  XP2O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                2                           */
     07  XP3O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                3                           */
     07  XP4O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                4                           */
     07  XP5O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                5                           */
     07  XP6O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                6                           */
     07  XP7O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                7                           */
     07  XP8O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                8                           */
     07  XP9O        CHAR (004),
/*                                OSI-TP OBJECT IDENTIFIER    */
/*                                9                           */
     07  XPOS        CHAR (004),
/*                                OSI-TP ASSOCIATION          */
/*                                REFERENCE                   */
   07    TEXT        CHAR (092);
/*                                                            */
DCL  01  P012        DEFINED      KXXX,
/*                                                            */
     07  XPCT        CHAR (004),
/*                                CMX ERROR TYPE              */
     07  XPCC        CHAR (004),
/*                                CMX ERROR CLASS             */
     07  XPCV        CHAR (004),
/*                                CMX ERROR VALUE             */
     07  XPBC        CHAR (004),
/*                                BCAM INFOWORD               */
     07  XPCO        CHAR (004),
/*                                MESSAGE CORRELATOR NUMBER   */
   07    TEXT        CHAR (132);
/*                                                            */
DCL  01  P013        DEFINED      KXXX,
/*                                                            */
     07  ACPN        CHAR (008),
/*                                ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                OSI-LPAP NAME               */
     07  XPCR        CHAR (004),
/*                                OSI-TP NEGATIVE             */
/*                                CONFIRMATION RESULT         */
     07  XPSR        CHAR (004),
/*                                OSI-TP RESULT SOURCE FROM   */
/*                                PARTNER                     */
     07  XPND        CHAR (004),
/*                                OSI-TP NEGATIVE             */
/*                                DIAGNOSTICS                 */
     07  XP1B        CHAR (005),
/*                                OSI-TP CCR V2 NOT           */
```

```
/*                                        AVAILABLE                   */
     07  XP2B        CHAR (005),
/*                                        OSI-TP PROTOCOL VERSION     */
/*                                        INCOMPATIBILITY             */
     07  XP3B        CHAR (005),
/*                                        OSI-TP CONTENTION WINNER    */
/*                                        ASSIGNMENT REJECTED         */
     07  XP4B        CHAR (005),
/*                                        OSI-TP BID MANDATORY        */
/*                                        REJECTED                    */
     07  XP5B        CHAR (005),
/*                                        OSI-TP NO REASON GIVEN      */
     07  XPOS        CHAR (004),
/*                                        OSI-TP ASSOCIATION          */
/*                                        REFERENCE                   */
   07    TEXT        CHAR (095);
/*                                                                    */
DCL  01  P014        DEFINED              KXXX,
/*                                                                    */
     07  XPFU        CHAR (020),
/*                                        CALLED OSI-TP FUNCTION      */
     07  ACPN        CHAR (008),
/*                                        ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                        OSI-LPAP NAME               */
     07  XPRE        CHAR (004),
/*                                        OSI-TP RETURN CODE          */
     07  XPER        CHAR (004),
/*                                        OSI-TP ERROR CODE           */
     07  XP1I        CHAR (004),
/*                                        OSI-TP ADDITIONAL           */
/*                                        INFORMATION 1               */
     07  XP2I        CHAR (004),
/*                                        OSI-TP ADDITIONAL           */
/*                                        INFORMATION 2               */
     07  XPOS        CHAR (004),
/*                                        OSI-TP ASSOCIATION          */
/*                                        REFERENCE                   */
     07  XPCO        CHAR (004),
/*                                        MESSAGE CORRELATOR NUMBER   */
   07    TEXT        CHAR (092);
/*                                                                    */
DCL  01  P015        DEFINED              KXXX,
/*                                                                    */
     07  XPFU        CHAR (020),
/*                                        CALLED OSI-TP FUNCTION      */
     07  ACPN        CHAR (008),
/*                                        ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                        OSI-LPAP NAME               */
     07  XPLN        CHAR (004),
/*                                        OSI-TP LINK                 */
     07  XPSR        CHAR (004),
/*                                        OSI-TP RESULT SOURCE FROM   */
/*                                        PARTNER                     */
     07  XPND        CHAR (004),
/*                                        OSI-TP NEGATIVE             */
/*                                        DIAGNOSTICS                 */
     07  XPIN        CHAR (004),
/*                                        OSI-TP INITIATOR            */
```

```
     07  XP1I        CHAR (004),
/*                                  OSI-TP ADDITIONAL           */
/*                                  INFORMATION 1               */
     07  XP2I        CHAR (004),
/*                                  OSI-TP ADDITIONAL           */
/*                                  INFORMATION 2               */
     07  XPOS        CHAR (004),
/*                                  OSI-TP ASSOCIATION          */
/*                                  REFERENCE                   */
     07  XPCO        CHAR (004),
/*                                  MESSAGE CORRELATOR NUMBER   */
   07    TEXT        CHAR (084);
/*                                                              */
DCL  01  P016        DEFINED      KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                  ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                  OSI-LPAP NAME               */
     07  XPLN        CHAR (004),
/*                                  OSI-TP LINK                 */
     07  XPND        CHAR (004),
/*                                  OSI-TP NEGATIVE             */
/*                                  DIAGNOSTICS                 */
     07  XPOS        CHAR (004),
/*                                  OSI-TP ASSOCIATION          */
/*                                  REFERENCE                   */
   07    TEXT        CHAR (124);
/*                                                              */
DCL  01  P017        DEFINED      KXXX,
/*                                                              */
     07  XPPD        CHAR (004),
/*                                  OSI-TP PDU TYPE             */
     07  XP1D        CHAR (004),
/*                                  OSI-TP DIAGNOSTIC           */
/*                                  INFORMATION 1               */
     07  XP2D        CHAR (004),
/*                                  OSI-TP DIAGNOSTIC           */
/*                                  INFORMATION 2               */
     07  XP3D        CHAR (004),
/*                                  OSI-TP DIAGNOSTIC           */
/*                                  INFORMATION 3               */
   07    TEXT        CHAR (136);
/*                                                              */
DCL  01  P018        DEFINED      KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                  ACCESS-POINT-NAME           */
     07  OSLP        CHAR (008),
/*                                  OSI-LPAP NAME               */
     07  XPPT        CHAR (004),
/*                                  OSI-TP PRIITIVE TYPE        */
     07  XPFS        CHAR (010),
/*                                  OSI-TP FSM NAME             */
   07    TEXT        CHAR (122);
/*                                                              */
DCL  01  P019        DEFINED      KXXX,
/*                                                              */
     07  ACPN        CHAR (008),
/*                                  ACCESS-POINT-NAME           */
```

```
     07  OSLP        CHAR (008),
/*                                  OSI-LPAP NAME                */
     07  XPAP        CHAR (020),
/*                                  OSI-TP APDU TYPE             */
     07  XP3I        CHAR (040),
/*                                  OSI-TP ADDITIONAL            */
/*                                  INFORMATION 3                */
   07    TEXT        CHAR (076);
/*                                                               */
```

4.11 Data structure KCOPP

```
/*****************************************************************+**/
/*                                                                +**/
/*     COPYRIGHT (C) SIEMENS NIXDORF INFORMATIONSSYSTEME AG 1992  +**/
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/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*                                                               */
/*       KDCS OPERATION CODES                                    */
/*       FOR PLI1                INCLUDE:  KCOPP                 */
/*****************************************************************/
DCL  01         KCOPP,
       03       INIT         CHAR (4)   INIT ('INIT'),
/*                                          INITIALIZE PROGRAM RUN*/
       03       PEND         CHAR (4)   INIT ('PEND'),
/*                                          PROGRAM RUN END       */
       03       MGET         CHAR (4)   INIT ('MGET'),
/*                                          READ DIALOG           */
/*                                          MESSAGE (PART)        */
       03       MPUT         CHAR (4)   INIT ('MPUT'),
/*                                          WRITE DIALOG          */
/*                                          MESSAGE (PART)        */
       03       FGET         CHAR (4)   INIT ('FGET'),
/*                                          READ ASYNCHRONOUS     */
/*                                          MESSAGE (PART)        */
       03       FPUT         CHAR (4)   INIT ('FPUT'),
/*                                          WRITE ASYNCHRONOUS    */
/*                                          MESSAGE (PART)        */
       03       SPUT         CHAR (4)   INIT ('SPUT'),
/*                                          WRITE SECONDARY       */
/*                                          STORAGE               */
       03       SGET         CHAR (4)   INIT ('SGET'),
/*                                          READ SECONDARY        */
/*                                          STORAGE               */
       03       SREL         CHAR (4)   INIT ('SREL'),
/*                                          RELEASE SECONDARY     */
/*                                          STORAGE               */
       03       GTDA         CHAR (4)   INIT ('GTDA'),
/*                                          READ TERMINAL SPECIFIC*/
/*                                          SECONDARY STORAGE     */
       03       PTDA         CHAR (4)   INIT ('PTDA'),
/*                                        WRITE TERMINAL SPECIFIC*/
/*                                          SECONDARY STORAGE     */
       03       LPUT         CHAR (4)   INIT ('LPUT'),
/*                                          WRITE RECORD TO       */
/*                                          USER LOG FILE         */
       03       UNLK         CHAR (4)   INIT ('UNLK'),
/*                                          UNLOCK GLOBAL         */
/*                                          SECONDARY STORAGE     */
       03       RSET         CHAR (4)   INIT ('RSET'),
/*                                          RESET TRANSACTION     */
       03       INFO         CHAR (4)   INIT ('INFO'),
/*                                          CALL INFO-SERVICES    */
       03       DPUT         CHAR (4)   INIT ('DPUT'),
/*                                          WRITE TIME-DRIVEN     */
```

```
/*                                          ASYNCHR. MESSAGE      */
/*                                          (PART)                */
      03       MCOM         CHAR (4)   INIT ('MCOM'),
/*                                          DEFINE MESSAGE-COMPLEX*/
      03       SIGN         CHAR (4)   INIT ('SIGN'),
/*                                          USE SIGN-ON FUNCTIONS */
      03       DADM         CHAR (4)   INIT ('DADM'),
/*                                          ADMINISTRATION OF     */
/*                                          ASYNCHRONOUS MESSAGE  */
      03       PADM         CHAR (4)   INIT ('PADM'),
/*                                          ADMINISTRATION OF     */
/*                                          PRINTER               */
      03       APRO         CHAR (4)   INIT ('APRO'),
/*                                          ADDRESSING A JOB-     */
/*                                          RECEIVING CONVERSATION*/
      03       PGWT         CHAR (4)   INIT ('PGWT'),
/*                                          PROGRAM WAIT          */
      03       CTRL         CHAR (4)   INIT ('CTRL');
/*                                          OSI-TP OPCODE CTRL    */
/*********************************************************************/
```

4.12 Data structure KCPADP

```
/*****************************************************************+**/
/*                                                                +**/
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/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*                                                                */
/*      STRUCTURES FOR RESULTINFORMATIONS                         */
/*      OF KCSPADM FUNCTION                                       */
/*      FOR  PL1                  INCLUDE:   KCPADP               */
/*****************************************************************/

         03         KCPADP,
           05       KCRETPAD       CHAR (44);
                                   /*   MAX LENGTH OF INFORMATION   */
/*****************************************************************/
/* STRUCTURE FOR RESULTINFORMATIONS OF KCSPADM, KCOM=AI          */
/*****************************************************************/
DCL    01          KCACKINF       DEFINED KCRETPAD,
             07    KCACKCID       CHAR (8),   /* PRINTER CONTROL ID*/
             07    KCGENUID       CHAR (8),   /* USER ID OF        */
                                               /* GENERATOR         */
             07    KCDPUTID       CHAR (8),   /* DPUT ID           */
             07    KCGENTIM,                  /* GENERATION TIME   */
               09  KCGENDOY       CHAR (3),   /* DAY OF YEAR       */
               09  KCGENHR        CHAR (2),   /* HOUR              */
               09  KCGENMIN       CHAR (2),   /* MINUTE            */
               09  KCGENSEC       CHAR (2),   /* SECOND            */
             07    KCSTTIM,                   /* DESIRED START TIME*/
               09  KCSTDOY        CHAR (3),   /* DAY OF YEAR       */
               09  KCSTHR         CHAR (2),   /* HOUR              */
               09  KCSTMIN        CHAR (2),   /* MINUTE            */
               09  KCSTSEC        CHAR (2),   /* SECOND            */
             07    KCPOSMSG       CHAR (1),   /* POS. ACKNOWL. JOB */
             07    KCNEGMSG       CHAR (1);   /* NEG. ACKNOWL. JOB */

/*****************************************************************/
/*  STRUCTURE FOR RESULTINFORMATIONS OF KCSPADM, KCOM=PI         */
/*****************************************************************/
DCL     01          KCPRTINF             DEFINED KCRETPAD,
                                           /* PRINTER INFO      */
             07     KCPRTCID       CHAR (8),   /* PRINTER CONTROL ID*/
             07     KCSTATE        CHAR (3),   /* ON: PTRM UNLOCKED */
                                               /* OFF:PTRM LOCKED   */
             07     KCCON          CHAR (1),   /* Y: PTRM CONNECTED */
                                               /* N: PTRM DISCON    */
             07     KCPRTMOD       CHAR (2),   /* PRINT MODE        */
             07     KCLTRMNM       CHAR (8),   /* LTERM NAME        */
             07     KCFPMSGS       CHAR (6),   /* NO OUTPUT  MSGS   */
             07     KCDPMSGS       CHAR (6),   /* NO DELAYED MSGS   */
             07     FILLER         CHAR (10);
```

4.13 Data structure KCPAP

```
/*****************************************************************+**/
/*                                                                +**/
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/*                                                                +**/
/*****************************************************************+**/
/*     SIEMENS NIXDORF INFORMATIONSSYSTEME AG openUTM  4.0        +**/
/*****************************************************************/
/*   KDCS STANDARD PRIMARY WORKING AREA                          */
/*   FOR PLI1    (SPAB)        INCLUDE:   KCPAP                  */
/*                                                               */
/*****************************************************************/
                                    /*                           */
DCL  01         KCMFXX   DEFINED KCMF,
         05     KCUS          CHAR (8);
                                    /*  USER ID                  */
/*****************************************************************/
                                    /*                           */
DCL  01         KCMFX    DEFINED KCMF,
           07   KCPA          CHAR (8);
                                    /*  NAME OF THE PARTNER      */
                                    /*  APPLICATION              */
/*****************************************************************/
                                    /*                           */
DCL  01         KCMFXXX  DEFINED KCMF,
           07   KCLT          CHAR (8);
                                    /*  NAME OF UTM TERMINAL     */
                                    /*  ( = LTERM )              */
/*****************************************************************/
                                    /*                           */
DCL  01         KCDFX    BASED ( ADDR (KCDF ) ),
           05   KCLI          BIN FIXED (15,0) UNALIGNED;
                                    /*  LENGTH OF INIT AREA      */
/*****************************************************************/
                                    /*                           */
DCL  01         KCDPUT   DEFINED EXTENT,
                                    /*  DATA FOR DPUT CALL:      */
           07   KCMOD         CHAR (1),
                                    /*  A=ABSOLUTE, R=RELATIVE*/
                                    /*  SPACE = NO TIME          */
           07   KCTAG         CHAR (3),
                                    /*  DAY                      */
           07   KCSTD         CHAR (2),
                                    /*  HOUR                     */
           07   KCMIN         CHAR (2),
                                    /*  MINUTE                   */
           07   KCSEC,
                                  /* THIS NAME ONLY FOR COMPATIBILITY  */
             09 KCSEK         CHAR (2),
                                    /*  SECOND                   */
           07   FILLER_1      CHAR (4);
                                    /*  UNUSED                   */
/*****************************************************************/
DCL  01         KCAPRO   DEFINED EXTENT,
                                    /*  DATA FOR APRO CALL:      */
           07   KCPI          CHAR (8),
```

```
                                        /*  CONVERSATION ID       */
           07   KCOF         CHAR (1),
                                        /*  OSI-TP FUNCTIONS      */
           07   FILLER_2     CHAR (5);
                                        /*  UNUSED                */
/*****************************************************************/
DCL  01         KCPADM   DEFINED EXTENT,
                                        /*  DATA FOR PADM CALL:   */
           07   KCACT        CHAR (3),
                                        /*  KCOM=CS: ACTION       */
           07   KCADRLT      CHAR (8),
                                        /*  KCOM=CA: LTERM NAME   */
           07   FILLER_3     CHAR (3);
                                        /*  NOT USED              */
/*****************************************************************/
DCL  01         KCSGCL   DEFINED EXTENT,
                                     /*  DATA FOR SIGN CL CALL:   */
           07   KCLANGID     CHAR (2),
                                     /*  LANGUAGE_ID              */
           07   KCTERRID     CHAR (2),
                                     /*  TERRITORY_ID             */
           07   KCCSNAME     CHAR (8),
                                     /*  CODED CHARACTER SET NAME */
           07   FILLER_3     CHAR (2);
                                     /*  NOT USED                 */
/*****************************************************************/
DCL  01         KCMCOM    BASED ( ADDR( KCPAP ) ),
                                  /*  DATA FOR MCOM CALL:         */
         05     FILLER_4     CHAR (18),
                                     /*  NOT USED                 */
         05     KCPOS        CHAR (8),
                                  /*  DESTINATION IN POSITIVE CASE */

         05     KCNEG        CHAR (8),
                                  /*  DESTINATION IN NEGATIVE CASE */
         05     KCCOMID      CHAR (8);
                                  /*  COMPLEX IDENTIFICATION       */
/*****************************************************************/
/*****************************************************************/
                                        /*                        */
DCL  01         KCSPAB,
                                        /*                        */
/*****************************************************************/
/*        KDCS PARAMETER AREA                                    */
/*****************************************************************/
       03       KCPAP,
                                        /*  KDCS PARAMETER AREA   */
         05     KCOP         CHAR (4),
                                        /*  OPERATION CODE        */
         05     KCOM         CHAR (2),
                                        /*  OPERATION MODIFICATION*/
         05     KCLA,
                                        /*  LENGTH OF AREA        */
           07   KCLKBPRG BIN FIXED (15,0) UNAL,
                                        /*  LENGTH OF KB          */
                                        /*  PROGRAM AREA          */
         05     KCLM,
                                        /*  LENGTH OF MESSAGE     */
           07   KCLPAB BIN FIXED (15,0) UNAL,
                                        /*  LENGTH OF SPAB        */
```

```
          05     KCRN         CHAR (8),
                                     /*  REFERENCE NAME        */
                                     /*  TAC/LTERM/STORAGE AREA*/
          05     KCMF         CHAR (8),
                                     /*  MESSAGE FORMAT        */
          05     KCDF         BIT (16),
                                     /*  SCREEN FUNCTION       */
          05     EXTENT       CHAR (14),
                                     /*  EXTENTION OF UTM V3.0 */
/*****************************************************************/
```

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*open*UTM V4.0

Supplement for PL/I (BS2000)

User Guide

Target group
Programmers of UTM PL/I applications
Contents
Translation of the KDCS program interface into the PL/I language, and all the information required by programmers of UTM PL/I applications

Edition: February 1997

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