

D:CNM (CONNECT A PROGRAM TO A TIMER - LKM10)

Calling Sequence

Entry Point: D:CNM

A7: address of program name block.

A8: address of 2-word parameter block, which may be of one of the following two formats:

Standard Connection:

	0	1		3	4	5		15
0	TIMER NUMBER			W G T	PULSE RATE (PR)			
NUMBER OF CYCLES BEFORE FIRST ACTIVATION (NC)								

where

TIMER NUMBER is the timer to which the program specified via A7 must be connected.

PR is a value from 0 to 2047.

NC is a value from 0 to 32677.

Bit 4 is set to 0 by the system (calling level \neq 48) and its use is reserved to the 'Wait for a given Time' module (D:WGT).

Absolute Time Connection:

	0	1		3	4	8	9		15
1	TIMER NUMBER			HOURS		PULSE RATE			
MINUTES					SECONDS				

where

PR is a value from 0 to 127.

The program specified via A7 is connected to the absolute time chain. At the time defined by the user (HH MM SS), it is started, disconnected from this chain and connected to the chain on the timer defined by the user in bits 1 to 3. This is managed by the M:DCK module.

Note: When PR=0, only one program activation takes place and the program is automatically disconnected from the timer. This is managed by the M:DCK module.

Work Areas and Tables

H:POIN Chain Pointer

When a connection is requested from D:CNTM, a 4-word block is automatically reserved in the dynamic allocation area. The format of such a block is as follows:

- Standard Connection

CHAINING LINK
NEGATIVE NC
POSITIVE PR
PROGRAM PCT ADDRESS

After the first program activation, the block format is as follows (unless PR was 0, in which case automatic disconnection will follow):

CHAINING LINK
POSITIVE PR
NEGATIVE PR
PROGRAM PCT ADDRESS

where the third word contains the PR value as updated by M:DCK.

- Absolute Time Connection

CHAINING LINK			
T.N.	HOURS	PULSE RATE	
MINUTES		SECONDS	
PROGRAM PCT ADDRESS			

After the first program activation, this block is reinitialized in standard format.

- 'Wait for a Given Time' Connection

CHAINING LINK			
NEGATIVE NC			
F	F	F	F
ECB FOR WHICH PROGRAM IS WAITING			

Input/Output Files

None.

Functional Description

This request builds and initializes a timer block, to establish a link between a timer and the calling program. It is started by the LKM request, which activates D:RMAC if it is core resident or D:USV2 if the request handler is disc resident.

First, D:CNTM checks the type of request in order to set or reset the WGT flag in the two-word parameter block. Then program name and timer number are checked and a request is given for a four-word block in the dynamic allocation area via the M:DMA module. If an error is detected at this point, it is set in the A7 register. If not, a timer block is initialized and connected to the timer chain defined by the calling block (see Work Areas and Tables).

At the end of this process D:CNTM returns to D:RMAC or D:USV2 with the Status set. One of the following values is returned to the

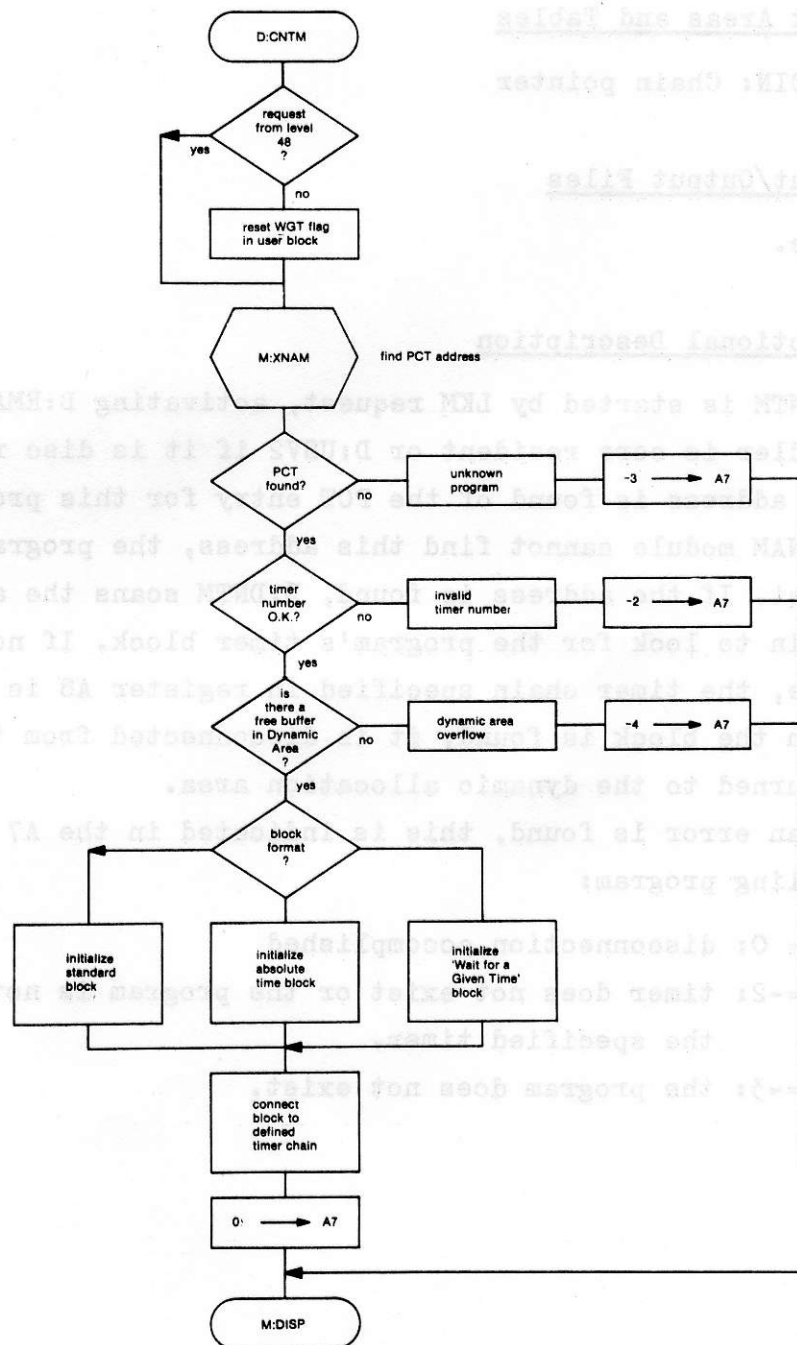
user in the A7 register:

A7 = 0: connection accomplished.

--2: timer does not exist.

--3: request to an unknown program.

--4: dynamic area overflow.



D:DNTM (DISCONNECT A PROGRAM FROM A TIMER - LKM11)

Calling Sequence

A7: address of program name block

A8: timer number.

Entry Point: D:DNTM

Work Areas and Tables

H:PCIN: Chain pointer

Input/Output Files

None.

Functional Description

D:DNTM is started by LKM request, activating D:RMAC if the request handler is core resident or D:USV2 if it is disc resident. First, the address is found of the PCT entry for this program. If the M:KNAM module cannot find this address, the program does not exist. If the address is found, D:DNTM scans the absolute time chain to look for the program's timer block. If no block is found here, the timer chain specified in register A8 is checked. When the block is found, it is disconnected from the chain and returned to the dynamic allocation area.

If an error is found, this is indicated in the A7 register of the calling program:

- A7 = 0: disconnection accomplished
- 2: timer does not exist or the program is not connected to the specified timer.
- 3: the program does not exist.

M:ACT (ACTIVATE - LKM12)

Calling Sequence

- If request comes via an LKM interrupt:
 - A7: address of program name block of program to be activated.
 - A8: ECB address.
- If request comes from D:ASYS (i.e. a system request for activation):
 - A3: system parameter
 - A4: return address
 - A5: 0
 - A6: 0
 - A7: address of program name block of program to be activated.
 - A8: ECB address.
 - CF D:ASYS

Work Areas and Tables

PCT of activated program.

Save area of activated program.

Dynamic allocation area, if the activated program is active when this request is given.

Input/Output Files

None.

Functional Description

This request is handled at level 48.

First the PCT entry of the activated program is searched for in the PCT Pool. If no PCT is found, a specific module is activated to seek the required program on all the discs of this configuration (This module, D:ABCK, is part of the D:USV2 module and runs at level 49). If the PCT of the activated program is found, the Activate module initializes the corresponding save area if the program is not yet active and sets its status to active. If the program is already active, a request block is built and connected to the activated PCT

(stacked Activate). At the end of the process a status is set in register A7:

A7 = 0: activation accomplished.

=-2: called program has not been connected to a level

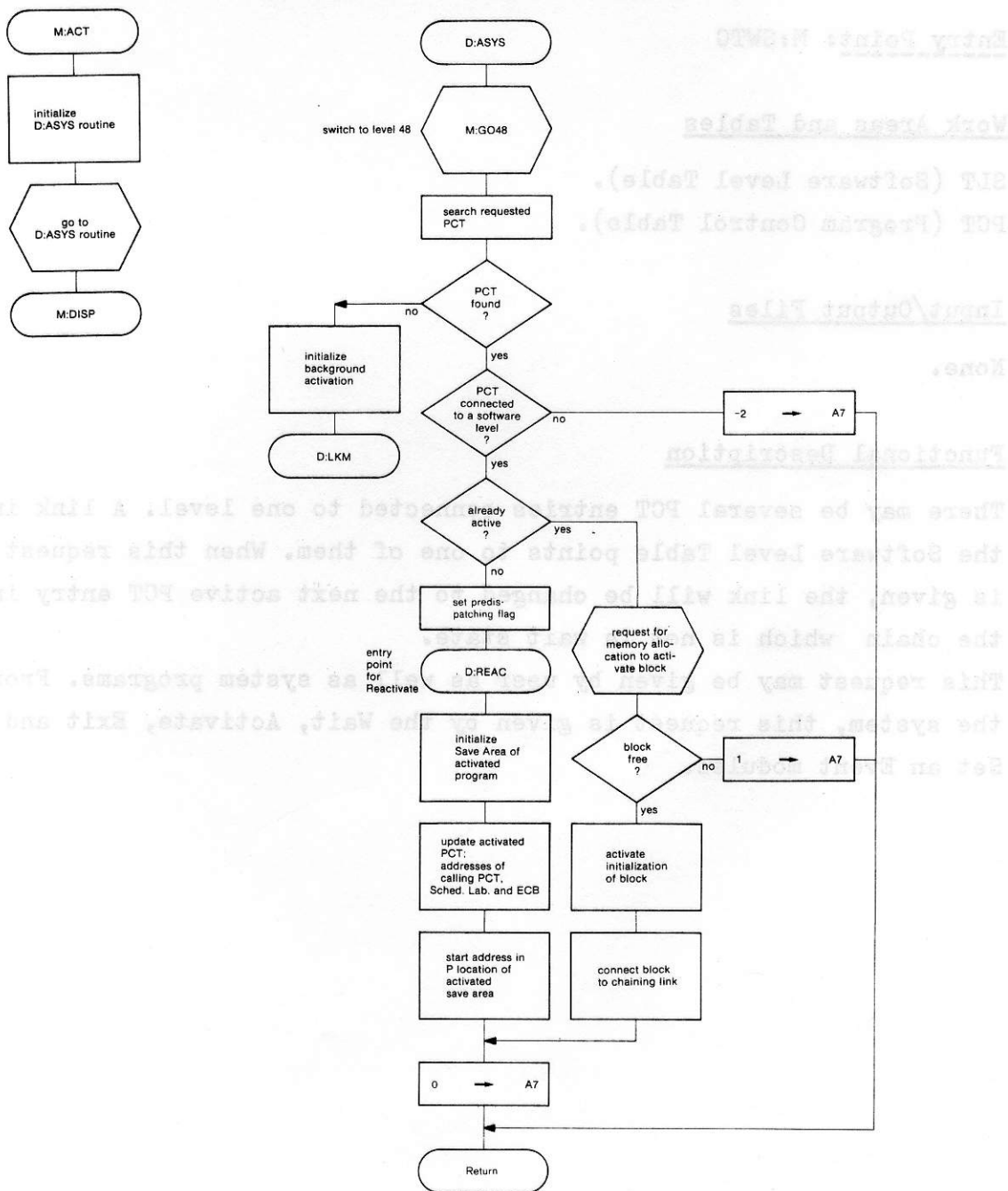
=-3: unknown program (set by D:ABCK)

=-4: dynamic area overflow

=-5: overflow of PCT Pool (set by D:ABCK)

=-6: overflow of Save Area (set by D:ABCK)

=-7: disc I/O error (set by D:ABCK)



M:SWTC (SWITCH INSIDE A SOFTWARE LEVEL - LKM13)

Calling Sequence

- A5: PCT address of calling program
- A6: Scheduled Label
- A7: Level to be switched. If this is zero, the level to be switched is equal to the level of the calling program + 1.

Entry Point: M:SWTC

Work Areas and Tables

- SLT (Software Level Table).
- PCT (Program Control Table).

Input/Output Files

None.

Functional Description

There may be several PCT entries connected to one level. A link in the Software Level Table points to one of them. When this request is given, the link will be changed to the next active PCT entry in the chain which is not in wait state.

This request may be given by user as well as system programs. From the system, this request is given by the Wait, Activate, Exit and Set an Event modules.

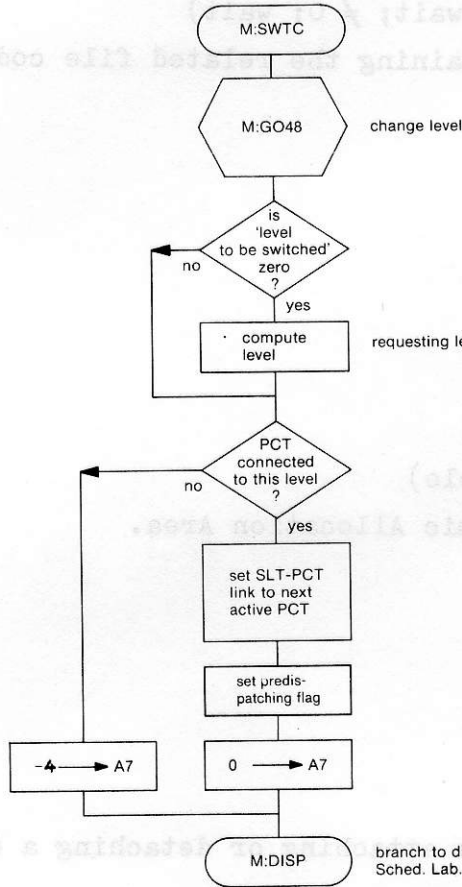
Calling Sequence

A5: PCT address of calling program

A6: Scheduled label, if any

A7: Wait flag (= 0: no wait)

A8: Address of PCB containing scheduled file code.



branch to dispatcher; Sched. Lab. parameters set.

This routine provides for attaching a device to a program. If the device is already attached to another program, the requesting program may, depending on the value of the Wait flag in A7, be put into wait state (with reinitialization) until the device is detached. Corresponding to the action to be taken, word 34 in the DWT (PCT address of program) is filled or set to 8000.

Note: The A8B is considered as 3 devices, so if the whole A8B is to be attached or detached, 3 requests must be given for the file codes corresponding to the A8B typewriter, A8B tape punch and A8B tape reader.

D:ATDT (ATTACH/DETACH A DEVICE TO/FROM A PROGRAM - LKM 14 + 15)

Calling Sequence

A5: PCT address of calling program
A6: Scheduled Label, if any
A7: Wait Flag (= 0: no wait; ≠ 0: wait)
A8: Address of ECB containing the related file code.

Entry Point: M:ATDV

Work Areas and Tables

FCT (File Code Table)
DWT (Device Work Table)
LFT (Logical File Table)
PCT (Program Control Table)
An 8-word block in Dynamic Allocation Area.

Input/Output Files

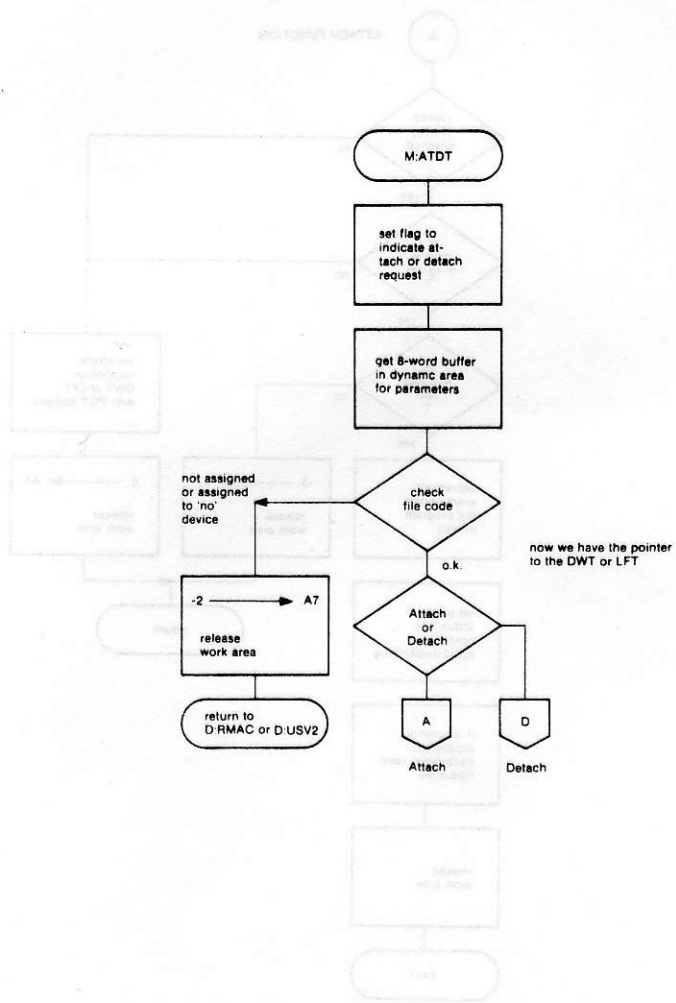
None.

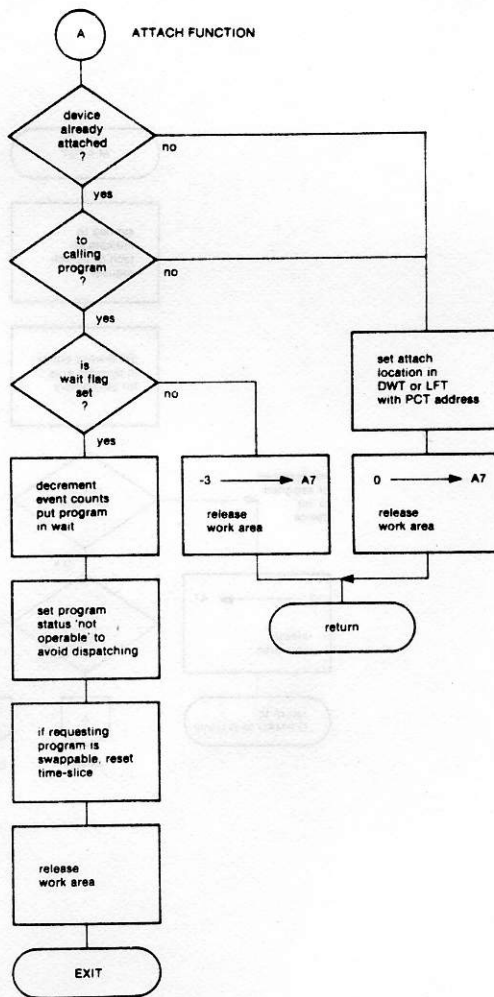
Functional Description

This module provides for attaching or detaching a device to or from a program.

If the device is already attached to another program, the requesting program may, depending on the value of the Wait Flag in A7, be put into wait state (with reinitialization) until the device is detached. Corresponding to the action to be taken, word 34 in the DWT (PCT address of program) is filled or set to /8000.

Note: The ASR is considered as 3 devices, so if the whole ASR is to be attached or detached, 3 requests must be given for the file codes corresponding to the ASR typewriter, ASR tape punch and ASR tape reader.





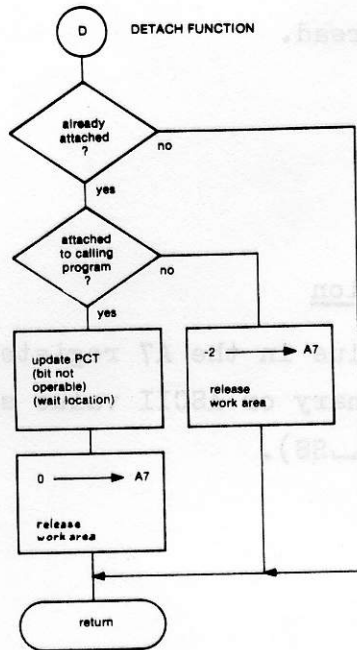
D:GTM (GET TIME - LKMI)

Calling Sequence

A7: contains a binary flag.
If this flag is zero, the date and time will be given in
ASCII in the 6-word user block.
If it is not zero, they will be given in binary.
A8: address of a 6-word block, containing date and time.

Entry Point: D:GTM

Work Areas and Tables



D:GTIM (GET TIME - LKM17)

Calling Sequence

A7: contains a binary flag.

If this flag is zero, the date and time will be given in ASCII in the 6-word user block.

If it is not zero, they will be given in binary.

A8: address of a 6-word block, containing date and time.

Entry Point: D:GTIM

Work Areas and Tables

The timer block is read.

Input/Output Files

None.

Functional Description

Depending on the value in the A7 register, a 6-word user block will be filled with a binary or ASCII value specifying the date and time (DD_MM_YY_HH_MM_SS).

M:RBY (SET AN EVENT - LEMIS)

Calling Sequence

A5: PCT address of calling program

A6: Scheduled label

A8: Event Control Block address

Entry point: M:RBY

M:RBY (pointed to through EVENT and used by the read-only system programs)

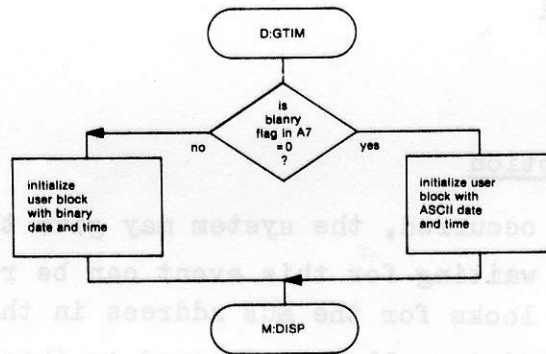
Work Areas and Tables

F:R (Software Level Table)

PCT (Program Control Table)

Input/Output Files

None.



M:RSEV (SET AN EVENT - LKM18)

Calling Sequence

- A5: PCT address of calling program
- A6: Scheduled Label
- A8: Event Control Block address.

Entry Point: M:RSEV

M:SEEV (pointed to through CVTSET and used by the read-only system programs)

Work Areas and Tables

- T:SLT (Software Level Table).
- PCT (Program Control Table).

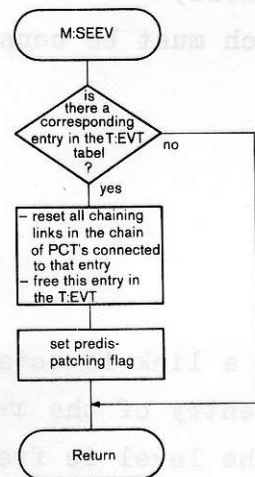
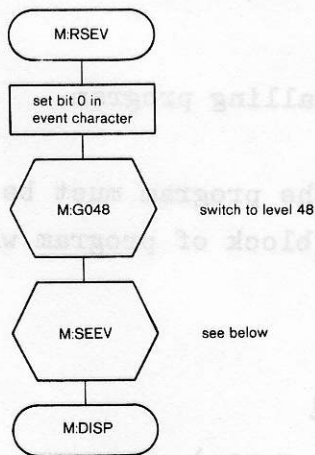
Input/Output Files

None.

Functional Description

When an event has occurred, the system may give this request so that the programs waiting for this event can be restarted. The M:RSEV module looks for the ECB address in the pool of T:EVT tables and updates all PCTs chained to this entry, i.e. waiting for this event, allowing corresponding programs to be restarted by the dispatcher.

D:ONLY (CONNECT A LEVEL TO A PROGRAM - LHM20)



D:CNLV (CONNECT A LEVEL TO A PROGRAM - LKM20)

Calling Sequence

- A5: PCT address of calling program
- A6: Scheduled Label
- A7: Level to which the program must be connected.
- A8: Address of name block of program which must be connected.

Entry Point: D:CNLV

Work Areas and Tables

- T:SLT (Software Level Table)
- PCT (Program Control Table)
- Save area of program which must be connected.

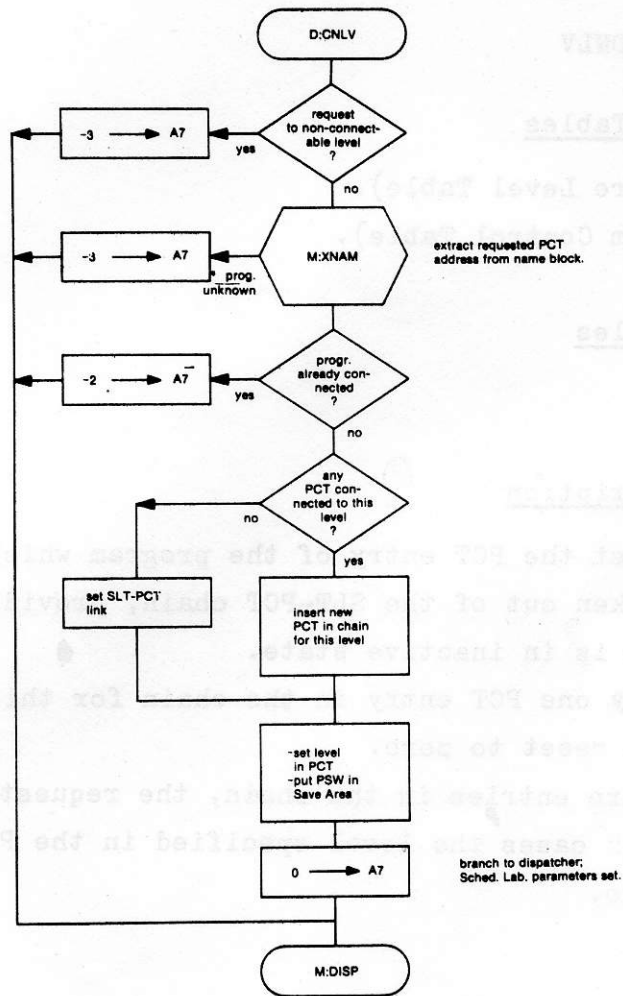
Input/Output Files

None.

Functional Description

By means of this request a link is established between the Software Level Table and the PCT entry of the requested program. This is simple in case the level is free, i.e. no PCT entry is yet connected to it. If the level is not free, the new PCT entry is inserted into the PCT chain for this level.

DISPATCH (DISPATCH A PROGRAM FROM A LEVEL - LEVEL)



D:DNLV (DISCONNECT A PROGRAM FROM A LEVEL - LKM21)

Calling Sequence

- A5: PCT address of calling program
- A6: Scheduled Label
- A7: Level which must be disconnected
- A8: Address of name block of program to be disconnected.

Entry Point: D:DNLV

Work Areas and Tables

T:SLT (Software Level Table).

PCT (Program Control Table).

Input/Output Files

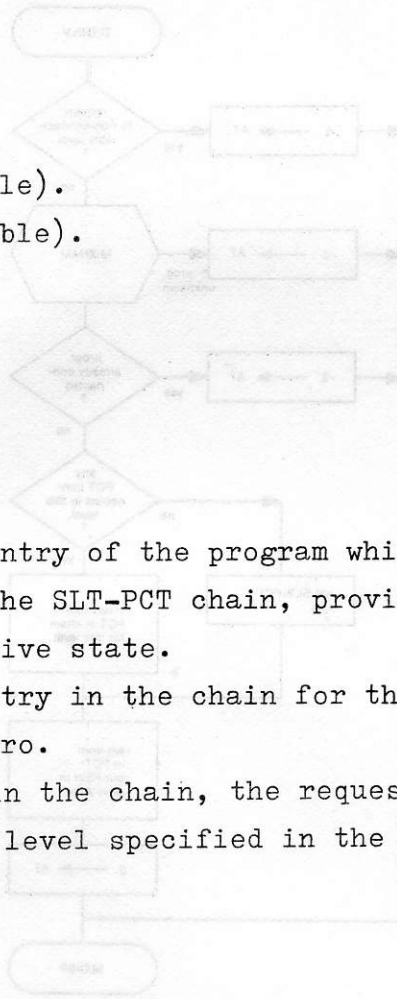
None.

Functional Description

With this request the PCT entry of the program which must be disconnected is taken out of the SLT-PCT chain, provided the corresponding program is in inactive state.

If there is only one PCT entry in the chain for this level, the SLT-PCT link is reset to zero.

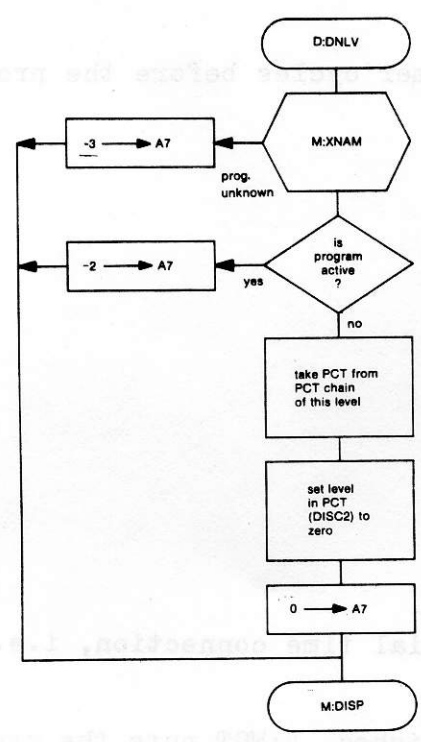
If there are more entries in the chain, the requested PCT entry is removed. In both cases the level specified in the PCT entry (DISK2), is reset to zero.



D:WOT (WAIT FOR A GIVEN TIME - LKMS)

Callink Register

AB: address of an Event Control Block initialized as follows:



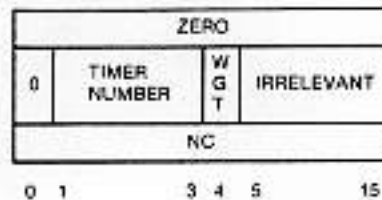
find PCT address of requested program.

change SLT-PCT link, if necessary

D:WGT (WAIT FOR A GIVEN TIME - LKM22)

Calling Sequence

A6: address of an Event Control Block initialized as follows:



where NC is the number of timer cycles before the program is restarted.

Entry Point: D:WGT

Work Areas and Tables

None.

Input/Output Files

None.

Functional Description

This module processes a special time connection, i.e. to a Wait for a Given Time block.

If the connection is accomplished, D:WGT puts the program in wait state on the ECB of the timer. If not, the error code -4 is set in the A7 register and control is returned to the dispatcher.

The user program is restarted by the M:DCK4 module after a number of cycles of a specified timer, as defined in a block pointed to by the A6 register. At the same time, the program is disconnected from the timer.

Callina Resources

