

# Multitasking

das Paket MTASK erlaubt kooperatives Multitasking.

Laden mit

```
1 GET MTASK
1 5 THRU
```

Glossar

```
(PAUSE)  ( -- )
RESTART  ( -- )
6 CONSTANT INT#
LOCAL    ( base adr -- adr' )
@LINK    ( -- adr )
!LINK    ( adr -- )
SLEEP    ( adr -- )
WAKE     ( adr -- )
STOP     ( -- )
SINGLE    ( -- )
MULTI    ( -- )
TASK:    ( size -- )
SET-TASK ( IP Task -- )
ACTIVATE ( Task -- ) Activate a Task
BACKGROUND: ( -- ) Create a Background task
```

aus L/P-F83-Doku:

## Multitasking low level

```
(PAUSE) (S -- )
```

Puts a task to sleep by storing the IP and the RP on the parameter stack. It then saves the pointer to the parameter stack in the user area and jumps to the code pointed at by USER+3, switching tasks.

```
RESTART (S -- )
```

Sets the user pointer to point to a new user area and restores the parameter stack that was previously saved in the USER area. Then pops the RP and IP off of the stack and resumes execution. The inverse of PAUSE.

Initialize current User area to a single task.

## Manipulate Tasks

```
LOCAL Map a User variable from the current task to another task
```

```
@LINK Return a pointer the the next tasks entry point
```

```
!LINK Set the link field of the current task (perhaps relative)
```

```
SLEEP makes a task pause indefinitely.
```

```
WAKE lets a task start again.
```

STOP makes a task pause indefinitely.  
SINGLE removes the multi-tasker's scheduler/dispatcher loop.  
MULTI  
    installs the multi-tasker's scheduler/dispatcher loop.  
    By patching the appropriate INT vector and enabling PAUSE.

MULTI starts the multi-tasker loop running. SINGLE stops it.  
Then type XXX WAKE to start the XXX task.  
To put the XXX on hold, use XXX SLEEP  
To restart it, use XXX WAKE

In general, executing the name of a task leaves the address of its user area on the stack. Words like sleep and wake use that address.

\ Activate a Task

TASK: Name, initialize, and allocate a new task.  
    Copy the USER Area. I point to where he pointed.  
    He points to me.  
    Set initial stack pointers.  
    Set dictionary pointer.  
    Make task ready to execute. Allocate task in host dictionary.  
SET-TASK assigns an existing task to the code at ip.  
    Get top of stack of the task to be used.  
    Put IP and RP values on its stack.  
    Set its saved stack pointer.

ACTIVATE assigns an existing task to the following code,  
    and makes it ready to execute.

\ Create a Background Task

BACKGROUND:  
    Create a new task of default size. Initialize it to execute  
    the following code.

Examples:

The task named counter executes an infinite loop, so STOP is not required. Note that you MUST use PAUSE, or no other tasks will be executed. PAUSE is built in to all words which do I/O, so tasks which do I/O ( like spooler ) do not need to use PAUSE explicitly.

## Beispiel

```
VARIABLE COUNTS
BACKGROUND: COUNTER BEGIN
    PAUSE 1 COUNTS +! AGAIN ;
COUNTER WAKE MULTI
```

COUNTS ?  
COUNTS ?  
COUNTS ?  
SINGLE

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