

| | | | |
|-------------|------|-------|----------|
| MMM | MMM | CCCCC | EEEEEEEE |
| MMMM | MMMM | CC CC | EE |
| MM MM MM MM | | CC | EE |
| MM MMM MM | | CC | EEEEEE |
| MM M MM | | CC | EE |
| MM | MM | CC | EE |
| MM | MM | CC CC | EE |
| MM | MM | CCCCC | EEEEEEEE |

COMMAND LINE EDITOR

Version V4.29 for RSX180 and RSX280

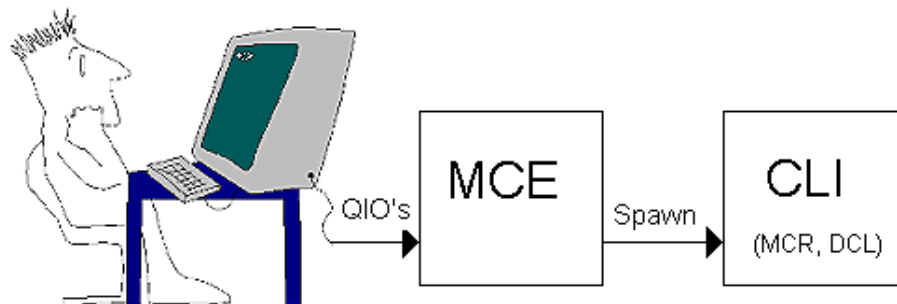
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1 Introduction

MCE is an RSX180/280 task through which you can communicate with the CLI (Command Line Interpreter, normally MCR) currently active at your terminal.



MCE lets you edit your command lines in an EDT-like way in keypad or non-keypad mode. MCE stores the command lines for you in a FIFO-buffer for later retrieval. In addition, you can define your own commands in the same way as in OpenVMS.

1.1 Credits

The Z180 version of MCE for RSX180/280 is a port of MCE 4.28 for RSX-11M, which was originally developed by D. Sponza (YU) in Oct '81 and later supported by Hans Hamakers (pAkUiT International, Elsbies 40, 3069 LN Rotterdam, The Netherlands.) This document is also adapted from the original MCE 4.28 documentation.

2 Options

Below are listed the optional features supported by MCE. They can individually be selected at build time.

- Multiple CLI support
- Init-File support
- Compound Command Line support
- Status Line support
- Startup and Exit messages
- Remote Terminal (RT: and HT:) detection
- VT2plus support¹
- VT4plus support²
- TDV2230 Function Key support
- EDT-Keypad editing support
- User Prompt support
- Extended Prompt support
- Terminal Password Locking
- Automatic return to Insert or Overwrite mode
- Terminal Time-Out support

2.1 Multiple CLI support

When multiple CLI support is included, MCE uses by default the prompt from the CLI that is active at the invoking terminal. Furthermore, different Init-Files for different CLIs can exist.

2.2 Init-File support

When Init-File support is included, MCE reads initialization files which can contain Command Synonym definitions, Internal- and CLI-commands. Files are searched in this order:

When multiple CLI support is included:

```
LB:[SYSTEM]MCEINI.xxx, followed by  
SY:[HomeDir]MCEINI.xxx
```

When multiple CLI support is not included:

```
LB:[SYSTEM]MCEINI.CMD, followed by  
SY:[HomeDir]MCEINI.CMD
```

where “xxx” is the name of the CLI defined for the terminal invoking MCE and “HomeDir” is the user’s login (or home) directory.

¹ In this manual VT2plus means support for VT2xx, VT3xx, VT4xx and VT5xx terminals.

² In this manual VT4plus means support for VT4xx, and VT5xx terminals.

This algorithm divides command definitions into two groups: a system-wide set in LB:[SYSTEM] followed by user's private set in SY:[HomeDir].

MCE allows overriding the default initialization files described above by specifying a different file name in the command line. That way, the user can tailor MCE to an application-specific command set.

Comments are allowed in the initialization file by preceding them with an exclamation mark "!", which is also the comment character for most CLI's.

An Example of an Init-File can be found in Appendix A.

2.3 Compound Command Line support

MCE allows definitions of compound commands. Using the ampersand sign "&", an MCE command can be defined as a sequence of multiple CLI commands, for example:

```
+>STAT := TIM & PIP /LI & ACT /ALL ... etc.
```

This defines STAT as a sequence of CLI commands that are executed one after another. MCE waits for completion of one command before activating the next.

It can also be done directly, e.g.:

```
+>MAC @TASKASM & TKB @TASKTKB
```

The "&" **MUST** be preceded by at least one space. This is done to let commands like "PIP /TD&/LI" still work.

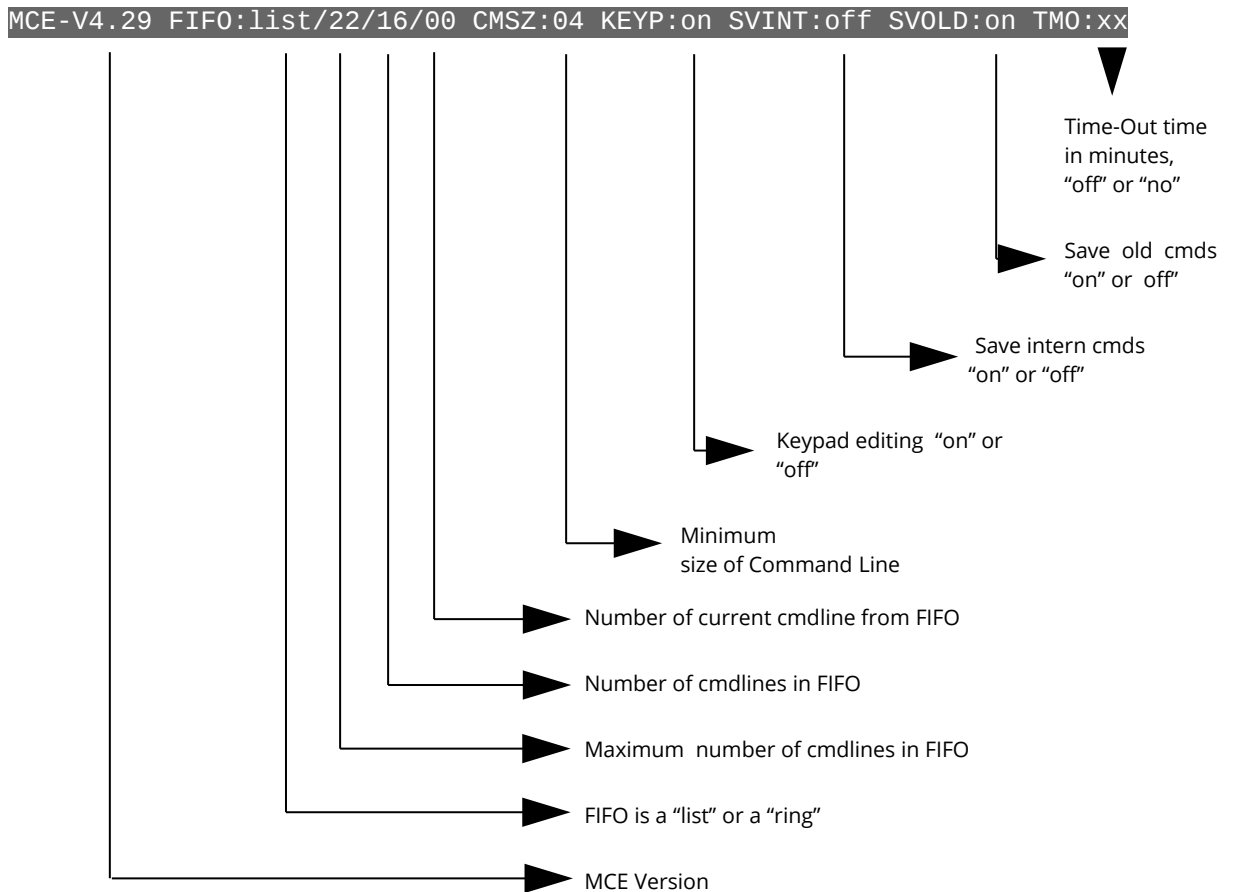
When a command in a compound command line gives a non-successful exit status, MCE terminates the compound command line there, showing the exit status and the command that caused it.

A compound command line may also contain Internal Commands (Commands starting with "MCE") in mixture with normal CLI commands. Only the first command is checked for translation.

2.4 Status Line support

Line 24 on an ANSI CRT terminal can be used for status information. The Status Line shows the different settings and FIFO-buffer parameters of MCE, and can be switched on or off with **MCE STATUS ON|OFF**. For non ANSI terminals like VT52's, only a snapshot can be displayed with **MCE STATUS**.

The Status Line displays the following information:



2.5 Startup and Exit messages

The Startup and Exit messages like:

```
MCE -- CLI Command Line Editor V4.29
```

and

```
MCE -- Exit
```

are optional. They can be enabled or disabled at build time.

MCE identifies itself with:

```
MCE -- MCR Command Line Editor V4.29
```

when no multiple CLI support was selected at build time.

2.6 Remote terminal (RT: and HT:) detection

When MCE is started via a remote terminal, problems can occur if the local system is VMS with its Command Line Editor enabled. The way MCE acts when it detects if it is started via a remote terminal can be specified at build time. One of the following options can be selected:

- Give the following message:

```
MCE -- ** WARNING ** Started on a Remote Rerminal.  
      If your local system is OpenVMS with its Command Line  
      Editor enabled please type "MCE EXIT"
```

- Give the following message and exit:

```
MCE -- Started on a Remote Terminal, exiting...
```

- Do nothing.

2.7 VT2Plus support

VT2plus support enables the use of VT2+³ keyboards.

The keys <F11>, <F12> and <F13> work as <ESC>, <BS> and <LF>. The keys <HELP>, <D0> etc. can also be used and it is possible to define the Function Keys <F6> . . <F20> like

```
F6 := TIM
```

Pushing <F6> then gives the time of day (see Function Keys).

2.8 VT4plus support

On a VT4+⁴ terminal it is possible to use <F1> . . <F5> as normal Function Keys. MCE allows you to define those keys in the same way as other Function Keys when this support is included with MCEBLD.

2.9 Tandberg TDV2230 function key support

The keys of a Tandberg TDV2230 terminal can be defined like the ones on a VT2+ (see Function Keys).

2.10 EDT-Keypad editing support

Some edit functions can be performed on a VT52/VT1xx/VT2+-keypad, similar to K52, KED and EDT. The Keypad-editing can be switched on or off with **MCE KEYPad ON|OFF**.

³ VT2+ in this manual stands for VT2xx and later models.

⁴ VT4+ in this manual stands for VT4xx and later models.

2.11 User Prompt support

The MCE prompt can be specified by the user with **MCE USPRompt UserPrompt**. A User Prompt can contain up to 20 characters.

The return to the default prompt type **MCE USPRompt**.

2.12 Extended Prompt support

The MCE prompt can show if Insert or Overwrite mode is active with "+" or "-" respectively. It can also display if keypad editing is enabled when the Status Line is off with ":", for example:

+ :>

The Extended Prompt can be switched on or off with **MCE PROMpt ON|OFF**.

2.13 Terminal password locking

When selected, this option enables the **MCE LOCK** command. It prompts for a password and verification and locks the terminal. When the password is entered again the terminal is ready to use again.

This is all like the LOCK command from Digital's Terminal servers.

2.14 Automatic return to Insert or Overwrite mode

Default Insert or Overwrite mode stays active until it is changed with <CTRL/A> or <F14>. MCE can be built so that it always returns to one of the modes when it prompts for a new command. This can be changed with the **MCE INSErt ON|OFF** and **MCE OVERstrike ON|OFF** commands.

2.15 Terminal Time-Out support

When terminal Time-Out support is included and the terminal is not used within a given time the terminal is logged-out (at TT0: MCE only exits).

Optionally, the time-out value can be changed with **MCE TIMOut nnn** to be 2 to 999 minutes or can be enabled or disabled with the **MCE TIMOut ON|OFF** command. The **MCE TIMOut** command MUST be included during build time to let this work (so system managers, do not be afraid, if YOU do not want it, they will not get it).

3 Startup and Exit

3.1 Command Line Editor Startup

Invoke MCE with command "MCE", preferably from your LOGIN file via a ".XQT MCE" statement. If Init-File support is included, a file containing Command-Synonyms, CLI-Commands, and/or Internal-Commands will be read if present and executed during the MCE startup procedure. A different startup file may be specified in the form "MCE <startup-file>". See the Init-Files section for the default startup file names.

3.2 Command Line Editor Exit

To exit MCE use either the **MCE EXIT** internal command or <CTRL/Y>.

4 Command Lines

When MCE is ready to accept a command line it displays a prompt. How the prompt looks depends on the chosen options and setup of MCE (see Extended Prompt). The maximum length of command lines is 78 characters.

If a command line starts with "MCE", it is interpreted as an Internal Command. Other command lines are checked for translation and the result is spawned to the current CLI.

Special action is performed with "BYE" and "LOG[out]", these two commands result in a spawn of "BYE" to MCR and MCE exits immediately. Note that you may define any other string (e.g. "GOODBYE") as synonym for "BYE" or "LOGOUT".

All command lines can be preceded by, and contain, one or more TAB's and/or spaces.

Normally all command lines equal to or longer than a given length are saved in a FIFO-buffer. This length can be changed with the **MCE CMSZ n** command.

The maximum number of command lines the FIFO-buffer can hold can be specified with the **MCE FISZ n** command. When the maximum number of command lines is present, or when no buffer pool space is available to hold more entries, the new command line is saved and the oldest disappears.

Retrieved command lines from the FIFO-buffer are only saved again if they are edited or when the saving of "old" command lines is enabled by **MCE SVOLD ON** and this command line is not the newest in the FIFO. This prevents filling up your FIFO with one command by continuously repeating the last command.

Internal commands are saved when this is enabled by **MCE SVInternals ON** (save "INTERNAL" commands).

5 Command synonyms

A command synonym can be defined with:

```
+>Syn := <Command1> [ & <Command2> [ & ... ] ]
```

where "Syn" is the command synonym which will be substituted by the text at the right side of ":", e.g.:

```
+>HE := HELP PIP
+>HE                                     will request "HELP PIP"
```

Note: The ":" must be preceded and followed by at least one TAB or space.

With Keypad-mode "OFF" the keystrokes <PF1> , <BLUE> or <ESC>P translate the command synonym without execution.

If you enter a command synonym followed by additional text, this additional text will normally be appended as a whole.

```
e.g.: +>HE /RE          Will request "HELP PIP /RE"
or    +>HE /RE<PF1>    Will be translated and displayed
result: +>HELP PIP /RE
```

A command synonym can be deleted by redefining it to null, e.g.:

```
+>HE :=                Delete above definition
```

Abbreviate commands by separating the optional part by "*", e.g.:

```
+>HP*IP := HELP PIP
```

This command can now be requested with:

```
+>HP or HPI or HPIP etc.
```

More sophisticated is the Parameter Substitution, similar to the indirect command file processor:

```
+>DIR*ECTORY          := PIP 'P1'/LI
+>COP*Y               := PIP 'P2'/NV/CD='P1'

+>DIR                  Will be translated into "PIP /LI"
+>DIREC FIL            Will be translated into "PIP FIL/LI"
+>COPY A.CMD [1,2]     Will simulate the DCL COPY command
```

Note that command synonyms may be executed from Init-Files as well.

6 Function Keys

You can request a command with Function Keys <PF1>, <PF2>, <PF3> or <PF4>.

The keys <BLUE>, <RED> and <GREY> on a VT52 are treated like <PF1>, <PF2> and <PF3>.

It is also possible to request commands with control keys (e.g. <CTRL/G>).

With a VT2+ keyboard you can also define the Function Keys <F6>..<F20> and <FIND>, <INSERT HERE> etc., but only when VT2plus support is included.

With a VT4+ <F1>..<F5> can be defined when this support is included.

The keys of a Tandberg TDV2230 keyboard can be defined like the ones on a VT2+, but only when TDV2230 support is included.

Define the command translation as "<key> := command", for example:

| | |
|--------------|--|
| +>PF2 := TIM | <i>Redefine <PF2> or <RED> key</i> |
| +><PF2> | <i>to display the current time</i> |
| +>F6 := ACT | <i>Define F6 function key</i> |
| +><F6> | <i>to display the active tasks</i> |

The keys <FIND> etc. on a VT2+ keyboard must be entered as F\$a where "a" is the first character of the key function (English key names), e.g.:

F\$P for <PREV-SCREEN>

Define a control key as follows:

| | |
|------------------|-----------------------------------|
| +>^G := SET /UIC | <i>Define <CTRL/G> key</i> |
| +><CTRL/G> | <i>to display the current UIC</i> |

Note that the following control-keys CAN NOT be defined:

<CTRL/M> (= <RETURN>)
<CTRL/O>
<CTRL/Q>
<CTRL/S>
<CTRL/[> (= <ESC>)

In addition to the remaining <CTRL/A..Z>, the following keys can be defined:

<CTRL/\>
<CTRL/]>
<CTRL/^>
<CTRL/?>

Note: A user-defined key overrules the function that the key may already have for MCE.

7 Internal Commands (MCE xxxx)

If a command line starts with “MCE” an Internal Command is assumed. Following the verb **MCE** a four-character action specifier defines the action wanted, e.g.:

MCE CLEA this command clears the FIFO-buffer.

Here follows a list of all internal commands:

- **MCE CHAIn [file]**
- **MCE CLEAR**
- **MCE CMSZ n**
- **MCE ECHO ON|OFF**
- **MCE EXIT**
- **MCE FISZ n**
- **MCE FREE**
- **MCE INSErt ON|OFF**
- **MCE KEYPad ON|OFF**
- **MCE LIST**
- **MCE LOCK**
- **MCE OVERstrike ON|OFF**
- **MCE PROMpt ON|OFF**
- **MCE PURGe**
- **MCE READ [file]**
- **MCE REPLace [file]**
- **MCE RING**
- **MCE STATusline [ON|OFF]**
- **MCE SVINternals ON|OFF**
- **MCE SVOLD ON|OFF**
- **MCE TIMOut n|ON|OFF**
- **MCE UPFind ON|OFF**
- **MCE USPRompt [UserPrompt]**
- **MCE VERSIon**

7.1 MCE CHAIn [file]

Chain from one Init-File to another, that is start or continue reading commands from the specified file. This command is a synonym for **MCE READ [file]**. This command is only available when Init-File support is included in MCE.

7.2 MCE CLEAR

This command deletes all commands currently in the FIFO-buffer.

7.3 MCE CMSZ n

Changes minimal command size to “n”. Only command lines that are equal to or longer than “n” characters are stored in the FIFO-buffer. Set the length to 79 if for any reason you do not want to save commands. The default setting can be specified at MCE build time.

7.4 MCE ECHO ON|OFF

When “ON”, MCE echoes command lines to the terminal. This is useful in Init-Files to display messages etc. or to see the translation of command synonyms. The default setting is “OFF” (see example in Appendix A).

7.5 MCE EXIT

This exits the MCE task.

7.6 MCE FISZ n

Changes the maximum number of command lines which can be saved in the FIFO buffer. Note that the actual number of lines that can be saved depends on the length of the commands and the available MCE pool space.

Information about MCE’s pool space can be obtained with the **MCE FREE** command. More pool space can be obtained by installing MCE with a larger increment: “INS \$MCE/INC=xxx”. A value of 2400, which is the default value used during task building (linking), will be enough in most cases. If “n” is smaller than the active number of command lines stored, MCE deletes the oldest lines from the FIFO buffer until “n” is reached.

The default setting can be specified at MCE build time.

7.7 MCE FREE

Displays MCE’s pool information as follows:

```
MCE – Pool:xxx:yyy:zz
```

where

| | |
|-----|----------------------------------|
| xxx | = Size of largest block in bytes |
| yyy | = Total number of free bytes |
| zz | = Number of fragments |

7.8 MCE INSERT ON|OFF

When “ON”, MCE goes back to Insert mode when prompting for a new command. The default setting can be specified at MCE build time.

| | |
|--------------------------------|-----------------------------------|
| <i>MCE INSERT ON</i> | Switches Auto-Overwrite mode off. |
| <i>MCE OVERwrite ON</i> | Switches Auto-Insert mode off. |

7.9 MCE KEYPad ON|OFF

Set Keypad editing on or off (see EDT-Keypad editing). This command is only available when EDT-Keypad support is included in MCE.

7.10 MCE LIST

Makes command FIFO-buffer a list: <UP> and <DOWN> stop at the top and bottom of the FIFO. This is the default setting (see also the ***MCE RING*** command).

7.11 MCE LOCK

The LOCK command prompts for a Password and verification and then locks the terminal until the password is typed again, much like the LOCK command of Digital’s Terminal servers. The maximum password-length is 8 characters.

This command is available only when Terminal Password locking support is included in MCE.

7.12 MCE OVERwrite ON|OFF

When “ON”, MCE goes back to Overwrite mode when prompting for a new command. The default setting can be specified at MCE build time.

| | |
|---------------------------------|-----------------------------------|
| <i>MCE OVERstrike ON</i> | Switches Auto-Insert mode off. |
| <i>MCE INSERT ON</i> | Switches Auto-Overwrite mode off. |

7.13 MCE PROMpt ON|OFF

Switches Extended Prompt on or off. The default setting can be specified at MCE build time. This command is only available when Extended Prompt support is included in MCE.

7.14 MCE PURGe

This command deletes all command synonyms currently from the synonym buffer.

7.15 MCE READ [file]

Read command lines from the specified file. This command is only available when Init-File support is included in MCE.

7.16 MCE REPLace [file]

Combines the **MCE PURGe** and **MCE READ [file]** commands. This command is only available when Init-File support is included in MCE.

7.17 MCE RING

Makes command FIFO-buffer a ring: <UP> and <DOWN> roll through the buffer. The default setting is "LIST" (see also the **MCE LIST** command).

7.18 MCE STATus [ON|OFF]

This command turns the Status Line on or off. When no option is specified a snapshot of the Status Line is displayed (see Status Line support.)

The default setting can be specified at MCE build time. This command is only available when Status Line support has been included in MCE.

7.19 MCE SVINternals ON|OFF

When "ON", Internal commands (command lines starting with "MCE") are saved in the FIFO-buffer, When "OFF" these commands are not saved. The default setting can be specified at MCE build time.

7.20 MCE SVOLd ON|OFF

When "ON", an "old" command (retrieved from the FIFO-buffer) is saved again in the FIFO-buffer if it is not the newest in the FIFO. When "OFF", "old" commands are not saved unless they are edited. The default setting can be specified at MCE build time.

7.21 MCE TIMOut n|ON|OFF

This command allows you to change the time-out value in minutes that you specified during MCEBLD run. The value "n" may be anything in the range of 2 to 999. You may also enable or disable time-out with the **ON|OFF** parameter.

This command is only available when Settable Terminal Time-Out support is included in MCE.

7.22 MCE UPFind ON|OFF

Since Version 4.27 of MCE, <UP> does a <RECALL> function (like <FIND>) when there is something on the command line and the cursor is at the end of the line. This feature is included because many PC command line editors have that feature. This is the default. The user can change to the old behavior with the **MCE UPFind OFF** command.

7.23 MCE USPRompt [UserPrompt]

When "UserPrompt" is specified, MCE uses this argument as the new prompt. It can contain up to 20 characters. When "UserPrompt" is not specified MCE uses the default prompt again.

This command is only available when User Prompt support is included in MCE.

7.24 MCE VERSion

Shows the MCE Version identification.

7.25 Some notes on Init-Files

When no filename argument is specified in the **CHAIN**, **READ** and **REPLace** commands, the same filename convention is used as at startup: the files according to the current CLI are read, i.e. the command **MCE REPLace** results in a MCE restart, but the FIFO-buffer is kept. This is useful after a "SET TERMINAL <new-cli>" command.

When a space is given as filename, only SY:[CurDir]MCEINI.xxx or SY:[HomeDir]MCEINI.xxx is read (see Init-File support).

8 Recall function

Recalling a command is done by entering the first part of a command which was previously executed, terminated by a RECALL keystroke. This will recall the last command already executed starting with the string entered. The command can be edited or executed by pressing the return key. A second RECALL keystroke searches further back in the FIFO-buffer. When no string is entered, the last defined string is taken.

Recall keystrokes are:

| | |
|--------------------------------------|-------------------|
| <FIND> | |
| <ESC>Q | |
| When anything is on the command line | : <UP> |
| In non EDT-Keypad mode | : <PF2> or <RED> |
| In EDT-Keypad mode | : <PF3> or <GREY> |

For example, if the following commands were previously entered:

```
+>DIR MCE*.*
+>MAC @MCEASM
+>TKB @MCETKB
+>DMP X.DAT
+>TIM
```

then

```
+>D<RECALL>
```

will recall the last command line starting with "D":

```
+>DMP X.DAT
```

another <RECALL> keystroke will recall an older command from the FIFO starting with "D":

```
+>DIR MCE*.*
```

Similarly,

```
+>DI<RECALL>
```

will recall

```
+>DIR MCE*.*
```

Note: Since Version 4.27 of MCE, <UP> does a <RECALL> function when there is something on the command line and the cursor is at the end of the line. This feature is included because many PC command line editors have that feature. This is the default. The user can change to the old behavior with the **MCE UPFind OFF** command.

9 Help File

A help file named MCE.HLP customized to the selected options is created when MCE is built.

Note that if you do not build the help file together with MCE, you cannot use the <NEXT-SCREEN> and <PREV-SCREEN> keys to walk through the help file.

10 Line-Editing commands

Line-editing is done in one of two modes:

- Non-keypad mode
- Keypad mode

In the non-keypad mode, you control MCE with control keys or Escape sequences. In the keypad mode you can use the keypad of a VT52, VT1xx or a VT2+ terminal for additional edit operations.

The advantage of this mode is that you can edit the current command line in the same way as you edit a line in K52, KED or EDT.

10.1 Non-keypad editing and cursor movement commands

| Cursor movements | |
|--|---|
| Move Cursor Left | <LEFT> <CTRL/D> |
| Move Cursor Right | <RIGHT> <CTRL/F> |
| Move Cursor to Begin Of Line (BOL) | <BACKSPACE> <CTRL/H> <F12> ⁵ |
| Move Cursor to End Of Line (EOL) | <CTRL/E> |
| Move one Word to the right or move from EOL to BOL | <TAB> <CTRL/I> |

| Delete commands | |
|---------------------------------|---------------------------------|
| Delete Character Left of Cursor | <DELETE> |
| Delete Character at Cursor | <CTRL/V> |
| Delete Word Left of Cursor | <LINEFEED> <CTRL/J> <F13> |
| Delete Word Right at Cursor | <CTRL/W> |
| Delete from Cursor to BOL | <CTRL/U> |
| Delete from Cursor to EOL | <CTRL/K> |
| Delete whole line | <CTRL/C> |

| Control commands | |
|--|-------------------|
| Rewrite Line | <CTRL/R> |
| Switch between Overwrite and Insert mode | <CTRL/A> <F14> |

⁵ On a VT2+ terminal only when VT2plus support is included

| Save and execute | |
|---|---------------------|
| Execute command | <RETURN> <ENTER> |
| Execute command without waiting | <ESC><ESC> <D0> |
| Execute command and leave FIFO-pointer where it is | <CTRL/X> |
| Save command without executing | <CTRL/N> |
| Enable output from other tasks. Detach for 10 sec. | <CTRL/T> |
| Enable output from other tasks. Stop; Resume with "UNS MCE" | <CTRL/P> |

| Non-keypad Command buffer manipulation keys | |
|--|---|
| Display contents of FIFO-buffer | <PF4> <ESC>S |
| Retrieve previous command | <UP> <CTRL/B> |
| Reverse of <UP> (next command) | <DOWN> |
| Recall command from FIFO | <PF2> <RED> <FIND> <ESC>Q <UP> ⁶ |

| Non-keypad Help keys | |
|------------------------------|--------------------|
| Display HELP about MCE | <HELP> <CTRL/?> |
| Display Next HELP screen | <NEXT - SCR> |
| Display Previous HELP screen | <PREV - SCR> |

| Non-keypad Command translation keys | |
|---|---------------------------|
| Translate command synonym without execution | <PF1> <BLUE> <ESC>P |
| Show command synonym buffer | <PF3> <GREY> <ESC>R |

10.2 EDT-keypad editing and cursor movement commands

While in keypad-mode the non-keypad commands are valid, except those commands that are redefined.

⁶ See "MCE UPFind" command

10.2.1 VT2+ Keyboard Lay-out

| F11 | F12 | F13 | F14 | HELP | DO |
|-------|----------------|-------------------------|---------|------|----------------|
| (ESC) | (BS) BEGLIN | (LF) DELWRD RIGHT | INS/OVR | HELP | EXECUTE NOWAIT |

| | | | PF1 | PF2 | PF3 | PF4 |
|------------------|--------------------------|--------------------------|------------------|-----------------|----------------|------------------|
| (FIND) RECALL | INSERT HERE | REMOVE | GOLD | KPHELP | RECALL | DELLIN UNDLIN |
| SELECT | PREV HELP (SCREEN) | NEXT HELP (SCREEN) | TRANSL | SHOSYN VERS | SHOFIF FREE | DELWRD UNDWRD |
| | PREV COMM. | | DETACH SUSPND | | CUT PASTE | DELCHR UNDCHR |
| ← | NEXT COMM. | → | WORD | EOL DELLIN | DO STAY | ENTER |
| | | | BEGLIN CLRLIN | SELECT RESET | SAVE | |

10.2.2 VT1xx Keypad Lay-out

| UP | DOWN | LEFT | RIGHT |
|----------------|---------------|------|-------|
| PREV. COMM. | NEXT COMM. | ← | → |

| PF1 | PF2 | PF3 | PF4 |
|------------------|----------------|-----------------|-------------------|
| GOLD | KPHELP | RECALL | DELLIN UNDLIN |
| TRANSL | SHOSYN VERS | SHOFIF FREE | DELWRD UNDWRD |
| DETACH SUSPND | | CUT PASTE | DELCHR UNDCHR |
| WORD | EOL DELLIN | DO STAY | ENTER SAVE |
| BEGLIN CLRLIN | | SELECT RESET | |

10.2.3 VT52 Keypad Lay-out

| BLUE | RED | GREY | UP |
|------------------|----------------|-----------------|---------------|
| GOLD | KPHELP | RECALL | PREV COMM. |
| TRANSL | SHOSYN VERS | SHOFIF FREE | NEXT COMM. |
| DETACH SUSPND | | CUT PASTE | → |
| WORD | EOL DELLIN | DO STAY | ← |
| BEGLIN CLRLIN | | SELECT RESET | ENTER SAVE |

10.2.4 Keypad editing and cursor movement keys

Note: <KPx> means key x on the keypad.

| Control commands | | |
|-----------------------|-----------------|------|
| Select lower function | <PF1> <BLUE> | GOLD |

| Cursor movements | | |
|--|-------|-------|
| Move Cursor to Begin Of Line | <KP0> | BEGIN |
| Move Cursor to End Of Line | <KP2> | EOL |
| Move one Word to the right or move from EOL to BOL | <KP1> | WORD |

| Delete commands | | |
|-----------------------------|------------------------------------|--------|
| Delete Character at Cursor | <KP,> | DELCHR |
| Delete Word Right at Cursor | <KP-> | DELWRD |
| Delete from Cursor to EOL | <PF4> <BLUE><KP2> <PF1><KP2> | DELLIN |
| Delete Whole line | <PF1><KP0> <BLUE><KP0> | CLRLIN |

| Undelete commands | | |
|--------------------|------------|--------|
| Undelete Character | <PF1><KP,> | UNDCHR |
| Undelete Word | <PF1><KP-> | UNDWRD |
| Undelete Line | <PF1><PF4> | UNDLIN |

| Cut and paste commands | | |
|---|---------------------------------------|--------|
| Set Begin Of Textmarker BOT | <SELECT> <KP.> | SELECT |
| Remove text from BOT to cursor and store it in the paste buffer | <REMOVE> <KP6> | CUT |
| Insert text-string from paste buffer starting at cursor | <INSERT> <BLUE><KP6> <PF1><KP6> | PASTE |
| Reset selected range | <PF1><KP.> <BLUE><KP.> | RESET |

| Save and execute | | |
|--|-------------------------------|---------|
| Execute Command | <ENTER> | EXECUTE |
| Execute Command and leave FIFO-pointer where it is | <KP3> | DO-STAY |
| Save Command without executing | <PF1><ENTER> <BLUE><ENTER> | SAVE |
| Enable output from other tasks Detach for 10 sec. | <KP4> | DETACH |
| Enable output from other tasks Stop; Resume with "UNST MCE" | <PF1><KP4> <BLUE><KP4> | SUSPND |

| Command buffer manipulation keys | | |
|----------------------------------|-----------------|--------|
| Display contents of FIFO-buffer | <KP9> | SHOFIF |
| Recall Command from FIFO | <PF3> <GREY> | RECALL |

| Command translation keys | | |
|---|-------|--------|
| Translate Command synonym without execution | <KP7> | TRANSL |
| Show Command Synonym Buffer | <KP8> | SHOSYN |

| Miscellaneous keys | | |
|--------------------|---------------------------|--------|
| Show version | <PF1><KP8> <BLUE><KP8> | VERS |
| Show free pool | <PF1><KP9> <BLUE><KP9> | FREE |
| Keypad Lay-out | <PF2> <RED> | KPHELP |

11 Building MCE

This section deals with the generation of the MCE task. The distribution contains the following files.

- MCE . MAC *Macro source file*
- MCEBLD . CMD *ICP command file to build MCE*
- MCEREL . TXT *Release notes*
- MCE . DOC *This manual in Microsoft Word 6.0 format*

To build The MCE task you need the following files:

- MCE . MAC
- MCEBLD . CMD
- LB: [SYSTEM]SYSFN . INC
- LB: [SYSTEM]QIO . INC
- LB: [SYSTEM]AST . INC
- LB: [SYSTEM]TCB . INC
- LB: [SYSTEM]DCB . INC
- LB: [SYSTEM]FCB . INC
- LB: [SYSTEM]FCSLIB . INC
- LB: [SYSTEM]ERRORS . INC
- LB: [SYSTEM]SYSLIB . LIB
- LB: [SYSTEM]FCSLIB . LIB

You start the building by typing:

@MCEBLD

Next you are asked to answer questions about which options you want to be included in MCE. The questions that are asked are about:

- MULTIPLE CLI SUPPORT
- INIT-FILE SUPPORT
- COMPOUND COMMANDLINE SUPPORT
- STATUSLINE SUPPORT
- STARTUP AND EXIT MESSAGES
- TYPE OF RT: AND HT: DETECTION
- VT2plus SUPPORT
- VT4plus SUPPORT
- TANDBERG TDV2230 SUPPORT
- EDT-KEYPAD SUPPORT
- USER PROMPT SUPPORT
- EXTENDED PROMPT SUPPORT
- TERMINAL PASSWORD LOCKING
- AUTO INSERT/OVERSTRIKE DEFAULTS
- SAVE OLD COMMANDS DEFAULT
- SAVE INTERNAL COMMANDS DEFAULT
- TERMINAL TIME-OUT SUPPORT
- MINIMAL CMD-LINE LENGTH
- MAXIMUM ENTRIES IN FIFO
- HELP FILE

MCEBLD.CMD creates the following files:

- MCESAVED.DAT *Saved Answers*
- MCE.HLP *Help file*
- MCEPRE.MAC *Conditional assembly prefix file*
- MCEASM.CMD *MACRO command file*
- MCETKB.CMD *TKB/LINK command file*

Then, MCEBLD.CMD invokes:

```
MAC @MCEASM  
TKB @MCETKB
```

Sample build-sessions can be found in Appendices B and C.

12 Known problems

12.1 MCE on RT:, HT: and LAT terminals

A terminal on an RT:, HT: or LAT line that with a task attached to the terminal can give some problems. When the line becomes disconnected by network timeout's or manual intervention the system tries to log the line out.

On those lines BYE can not do I/O if the attached task has a priority higher than BYE. This is an RSX problem. MCE is a task that attaches to the terminal and can give problems as mentioned. If BYE is installed with a higher priority than MCE (e.g. MCE 60 and BYE 70) the problem with MCE is solved.

12.2 Remarks on 8-Bit terminals and lines

A VT2+ terminal in 7-bit mode always sends "normal" Escape-sequences:

```
PF1 = ESC [ P          (33, 133, 120)
F20 = ESC ? 3 4 ~      (33, 77, 63, 64, 176)
```

The EBC, RPA, PASTHRU settings of the TI: do not have effect on the processing of those keys.

A VT2+ terminal in 8-bit mode sends other sequences:

```
PF1 = SS3 P          (217, 120)
F20 = CSI 3 4 ~      (233, 63, 64, 176)
```

In this case the EBC, RPA, PASTHRU settings of the TI: do have effect. Although they do different things one of the options MUST be set to "on" to let MCE see the keypad keys the right way.

The IO.RST used by MCE sees the following terminating characters in IOSTB+1:

| EBC | RPA | PASTHRU | SS3 | CSI | MCE |
|-----|-----|---------|-----|-----|--------|
| 0 | 0 | 0 | 0 | 33 | not OK |
| 0 | 0 | 1 | 17 | 33 | OK |
| 0 | 1 | 0 | 17 | 33 | OK |
| 0 | 1 | 1 | 17 | 33 | OK |
| 1 | 0 | 0 | 217 | 233 | OK |
| 1 | 0 | 1 | 217 | 233 | OK |
| 1 | 1 | 0 | 217 | 233 | OK |
| 1 | 1 | 1 | 217 | 233 | OK |

Appendix A

Init-File Example

```
!  
!  
! LB:[SYSTEM]MCEINI.MCR  
!  
MCE STATUS ON  
MCE SVINTERN OFF  
MCE USPROMPT Oldie>  
!  
?  
AS*SEMBLE := MAC @'P1'ASM  
CO*PY := PIP 'P2'/NV='P1'  
D*IR := DIR  
FO := FOR @'P1'FTN  
LI*NK := TKB @'P1'TKB  
MO*VE := PIP 'P2'/NV='P1' & PIP 'P1';0/DE/NM  
RE*NAME := PIP 'P2'='P1'/RE  
R*UN := RUN  
BLD := MAC @'P1'ASM & TKB @'P1'TKB  
!  
! MCR Commands...  
!  
CLR ! Clear screen  
MCE ECHO ON ! Echo on  
!  
! ***WARNING*** -- The system will go down for PM every Friday  
!  
MCE ECHO OFF ! Echo off  
TIM ! Show time and date  
!  
! End of LB:[SYSTEM]MCEINI.MCR  
!
```

Appendix B

Sample MCE build-session (RSX180 and no saved answers)

```
>@mceblld  
MCEBLD.CMD -- Command file to build the MCE Command Line Editor V4.29
```

This Command File builds YOUR version of MCE. It will ask which options do you want to be included in MCE. Then it will create a conditional assembly definition file named MCEPRE.INC, two command files, MCEASM.CMD and MCETKB.CMD, and optionally a MCE.HLP help file.

If you already have created those files, then you can restart MCEBLD using the command "@MCEBLD MAC" to assemble and taskbuild, or "@MCEBLD LINK" to taskbuild only.

MCEBLD can use saved answers from a previous session.

MCEBLD can use the saved answers as default and still ask the questions, or it can directly use the saved answers and skip the questions for which answers have been defined.

```
MCEBLD -- Do you have a saved answer file? [D:N]:
```

MCEBLD can save the answers for a future session

```
MCEBLD -- Do you want to save the answers? [D:N]: y  
MCEBLD -- Name of the saved answer file [D:MCESAVED.DAT]:
```

The standard CLI (Command Line Interpreter) of RSX180 is MCR.
If your system supports the use of alternate CLIs such as DCL then include Multiple CLI support in MCE.

```
MCEBLD -- Want the Multiple CLI support? [D:N]:
```

When Init-File support is included, MCE reads initialization files which can contain Command Definitions for Internal- and MCR-commands.

Files are searched in this order:

LB:[SYSTEM]MCEINI.CMD, followed by SY:[CurDir]MCEINI.CMD,

where "CurDir" is the default directory at the startup of MCE.

This allows having 2 sets of command definitions:
A system-wide set in LB:[SYSTEM], followed by a user's private set.

MCEBLD -- Want the MCE Init-File support? [D:N]: y

MCE allows definitions of Compound Commands.
Using the ampersand sign (&) one can define an MCE command as a
sequence of multiple MCR commands, e.g.:

+>STAT := TIM & PIP /LI & ACT /ALL ...etc.

or directly, e.g.:

+>MAC @TASKASM & TKB @TASKTKB

MCEBLD -- Want the Compound Command support? [D:N]: y

It is possible to include Status Line support.
The Status Line shows the different settings and FIFO-parameters of MCE
and can be switched on/off with the "MCE STATUS on/off" command.
Line 24 of the terminal is used for status information.

MCEBLD -- Want Status Line support? [D:N]: y

MCEBLD -- Want Status Line ON by default? [D:N]: y

The Startup and Exit messages

"MCE -- MCR Command Line Editor V4.29" and "MCE -- Exit"

are optional.

MCEBLD -- Want Startup and Exit messages? [D:N]: y

When starting MCE from a remote terminal (RT: or HT:) problems may occur
if the local system is VMS with its command line editor enabled. MCE can
detect if it was started from a remote terminal and can take one of the
following 3 actions:

1. Give the following message:

MCE -- ** WARNING ** Started on a Remote Terminal.
If your local system is OpenVMS with its command line
editor enabled please type "MCE EXIT"

2. Give the following message and exit:

MCE -- Started on a Remote Terminal, exiting...

3. Do nothing

```
MCEBLD -- Which option for RT:? [D:1]: 3
MCEBLD -- Which option for HT:? [D:1]: 3
```

VT2plus support enables the use of VT2xx, VT3xx, VT4xx and VT5xx terminals. The keys <F11>, <F12> and <F13> work as <ESC>, <BS> and <LF> respectively. The keys <HELP>, <D0> etc. can also be used and it is possible to define the function keys <F6>..<<F20> like this:

```
"F6 := TIM"
```

Pressing <F6> then gives the time of day.

```
MCEBLD -- Want the VT2plus support? [D:N]: y
```

On VT4xx and VT5xx terminals it is possible to use <F1>..<<F5> as normal function keys. VT4plus support enables you to define those keys too if you answer "Y" to the following question.

```
MCEBLD -- Want the VT4plus support? [D:N]: y
```

The keys of a Tandberg TDV2230 terminal can also be defined.

```
MCEBLD -- Want the Tandberg TDV2230 function key support? [D:N]:
```

Some edit functions can be performed on the VTxxx keypad, similar to EDT, KED and K52 edit functions. The Keypad-editing can be switched on/off with the "MCE KEYPad on/off" command.

```
MCEBLD -- Want the EDT-Keypad editing support? [D:N]: y
MCEBLD -- Want EDT-Keypad editing ON by default? [D:N]:
```

The MCE prompt can show if insert or overwrite mode is active with "+" and "-" respectively. It can also display if EDT-Keypad editing (when the corresponding option is selected) is enabled with a ":" when the status line is off,

```
e.g.      "+:;>"
```

The Extended Prompt can be switched on/off with the "MCE PROMpt on/off" command.

```
MCEBLD -- Want the Extended Prompt? [D:N]: y
MCEBLD -- Want Extended Prompt ON by default? [D:N]:
```

MCE can display a User Prompt. This prompt can be specified with the "MCE USPRompt <UserPrompt>" command. The maximum prompt size is 20 characters.

MCEBLD -- Want the User Prompt? [D:N]: y

MCE can lock a terminal with a password, almost like the LOCK command from Digital's terminal servers. The maximum password-length is 8 characters.

MCEBLD -- Want the terminal Password Locking? [D:N]: y

By default, Overwrite or Insert mode stays active until it is changed with <CTRL/A> or <F14>. MCE can be built so that it sets one of the modes active by default when it prompts for a new command. This can be changed with the "MCE INSERt on/off" and the "MCE OVERwrite on/off" commands.

MCEBLD -- Want MCE to set Insert mode back by default? [D:N]: y

Normally, "old" commands (retrieved from the FIFO, but not edited) are saved again in the FIFO. MCE can be built so that it does not save these commands again. This mode can be changed with the "MCE SVOLd on/off" command.

MCEBLD -- Want MCE to save "old" commands by default? [D:N]:

Normally, Internal commands are saved in the FIFO. MCE can be built so that it does not save them. This mode can be changed with the "MCE SVINtern on/off" command.

MCEBLD -- Want MCE to save Internal commands by default? [D:N]:

When terminal Time-Out support is included, the terminal is logged out after a predetermined time (the exception is when MCE is run from TT0:, where it simply exits). You can either specify a fixed Time-Out value or allow the user to change it.

MCEBLD -- Want the terminal Time-Out support? [D:N]:

Only command lines with a length greater than or equal to a given length are saved in the FIFO. The value can be changed with the "MCE CMSZ n"

command. Use a value of 79 if you don't want to save any commands at all.

MCEBLD -- Enter minimum command line length [1..79 D:3]:

Specify the default maximum number of commands which can be saved into the FIFO. The value can be changed with the "MCE FISZ n" command. Note that the actual number of commands that can be saved depends on the length of the commands and the available MCE pool space. Information about MCE's pool space can be obtained with the "MCE FREE" command.

Additional pool space can be created by installing MCE with a larger increment, like this: INS \$MCE/INC=xxx
A value of 2400 will be enough in most cases.

MCEBLD -- Enter maximum number of entries in FIFO [1..99 D:22]: 50

A custom MCE.HLP help file will be automatically created if you answer "Y" to the following question.

Note that if you don't create the help file now, you will no be able to use the <NEXT-SCREEN> and <PREV-SCREEN> keys to walk through the help file.

MCEBLD -- Create Help file on LB:? [D:N]: y

MCEBLD -- What is your Help Directory? [D:[HELP]]:

MCEBLD -- When done, copy the output MCE.TSK file to LB: device? [D:N]:

MCEBLD -- Print listing and map? [D:N]:

MCEBLD -- No more questions.

MCEBLD -- Creating saved answer file MCESAVED.DAT

PIP MCESAVED.DAT/PU/NM

MCEBLD -- Creating help file LB:[HELP]MCE.HLP

PIP LB:[HELP]MCE.HLP/PU/NM

MCEBLD -- Creating assembly configuration file MCEPRE.INC

PIP MCEPRE.INC/PU/NM

MCEBLD -- Creating assembly command file MCEASM.CMD

PIP MCEASM.CMD/PU/NM

MCEBLD -- Creating task builder command file MCETKB.CMD

PIP MCETKB.CMD/PU/NM

MCEBLD -- Assembling MCE

MAC @MCEASM

PIP MCE.OBJ/PU/NM,MCE.LST/PU/NM

MCEBLD -- Building MCE

TKB @MCETKB

PIP MCE.TSK/PU/NM,MCE.MAP/PU/NM,MCE.SYM/PU/NM

MCEBLD -- Done.

>

Appendix C

Sample MCE build-session (RSX180 with saved answers file)

```
>@mceblld
```

```
MCEBLD.CMD -- Command file to build the MCE Command Line Editor V4.29
```

This Command File builds YOUR version of MCE. It will ask which options do you want to be included in MCE. Then it will create a conditional assembly definition file named MCEPRE.INC, two command files, MCEASM.CMD and MCETKB.CMD, and optionally a MCE.HLP help file.

If you already have created those files, then you can restart MCEBLD using the command "@MCEBLD MAC" to assemble and taskbuild, or "@MCEBLD LINK" to taskbuild only.

MCEBLD can use saved answers from a previous session.

MCEBLD can use the saved answers as default and still ask the questions, or it can directly use the saved answers and skip the questions for which answers have been defined.

```
MCEBLD -- Do you have a saved answer file? [D:N]: y
MCEBLD -- Name of the saved answer file [D:MCEAVED.DAT]:
MCEBLD -- Do you want to skip the questions? [D:N]: y
```

MCEBLD can save the answers for a future session

```
MCEBLD -- Do you want to save the answers? [D:N]:
```

```
-- Multiple CLI support included      : F
```

```
-- MCE Init-File support              : T
```

```
-- Compound Command support          : T
```

```
-- Status line support                : T
```

```
-- Status Line ON by default          : T
```

```
-- Startup and Exit messages support: T
```

```
-- RT Messages                       : F
```

```
-- RT Exit                           : F
```

```
-- HT Messages                       : F
```

```
-- HT Exit                           : F
```

```
-- VT2plus support                   : T
```

```
-- VT4plus support                   : T
```

```

-- Tandberg TDV2230 support          : F
*****
-- EDT-Keypad support                : T
-- EDT-Keypad ON by default          : F
*****
-- Extended Prompt support           : T
-- Extended Prompt ON by default     : F
*****
-- User Prompt support               : T
*****
-- Password Locking                  : T
*****
-- Insert mode default                : T
-- Overwrite mode default            : F
*****
-- Save OLD Commands                 : F
*****
-- Save Internal Commands            : F
*****
-- Time-Out Support                  : F

*****
-- Minimum Command line length       : 3
*****
-- Maximum FIFO length                : 50

*****

```

A custom MCE.HLP help file will be automatically created if you answer "Y" to the following question.

Note that if you don't create the help file now, you will no be able to use the <NEXT-SCREEN> and <PREV-SCREEN> keys to walk through the help file.

```

MCEBLD -- Create Help file on LB:? [D:Y]:
-- Help directory                      : [HELP]
*****

```

```

MCEBLD -- When done, copy the output MCE.TSK file to LB: device? [D:N]:
MCEBLD -- Print listing and map? [D:N]:

```

```

MCEBLD -- Use the source file MCE.MAC? [D:N]: y
MCEBLD -- No more questions.

```

```

MCEBLD -- Creating help file LB:[HELP]MCE.HLP
PIP LB:[HELP]MCE.HLP/PU/NM
MCEBLD -- Creating assembly configuration file MCEPRE.INC
PIP MCEPRE.INC/PU/NM
MCEBLD -- Creating assembly command file MCEASM.CMD
PIP MCEASM.CMD/PU/NM
MCEBLD -- Creating task builder command file MCETKB.CMD
PIP MCETKB.CMD/PU/NM
MCEBLD -- Assembling MCE
MAC @MCEASM
PIP MCE.OBJ/PU/NM,MCE.LST/PU/NM
MCEBLD -- Building MCE
TKB @MCETKB
PIP MCE.TSK/PU/NM,MCE.MAP/PU/NM,MCE.SYM/PU/NM

```

```
MCEBLD -- Done.  
>
```