



Installation of the LAN Adapter

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Summary

This Application Note describes how to install the LAN Adapter for the Emulators MB2141 (16Bit) and MB2197 (32Bit, FR).

For the MB2141 an optional external LAN-Adapter has to be used, while the MB2197 has a built-in 10Base2 LAN-Interface.

The descriptions within this application-note are based on the external LAN-adapter for MB2141, but they are valid for the MB2197 built-in adapter as well.

History

02.06.1998	AAt	V1.0	started
28.06.2000	TKa	V1.1	New format
19.11.2001	HW	V2.0	New format and Windows installation added

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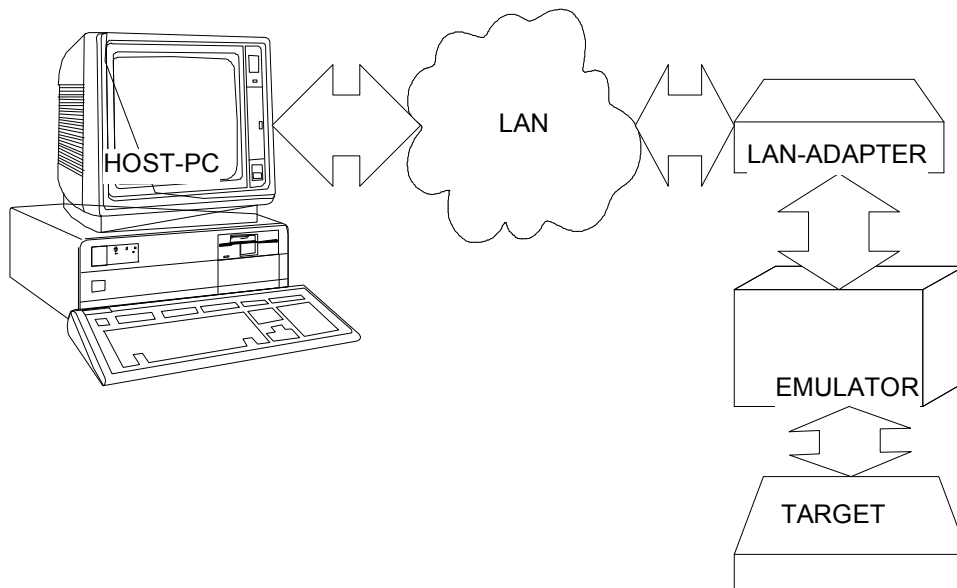
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Introduction

With the FUJITSU'S LAN-Adapter you are no more obliged to be located next to the target-board to get it debugged.



The Fujitsu emulators MB2141 and MB2197-01 respectively for the 16bits- and the FR-flash-microcontroller are provided with a local area network adapter that can be used to program and debug a device over a network connection. No additional hardware connection except the LAN connection is required for this purpose

Using the Fujitsu LAN-remote controlled debug facility,

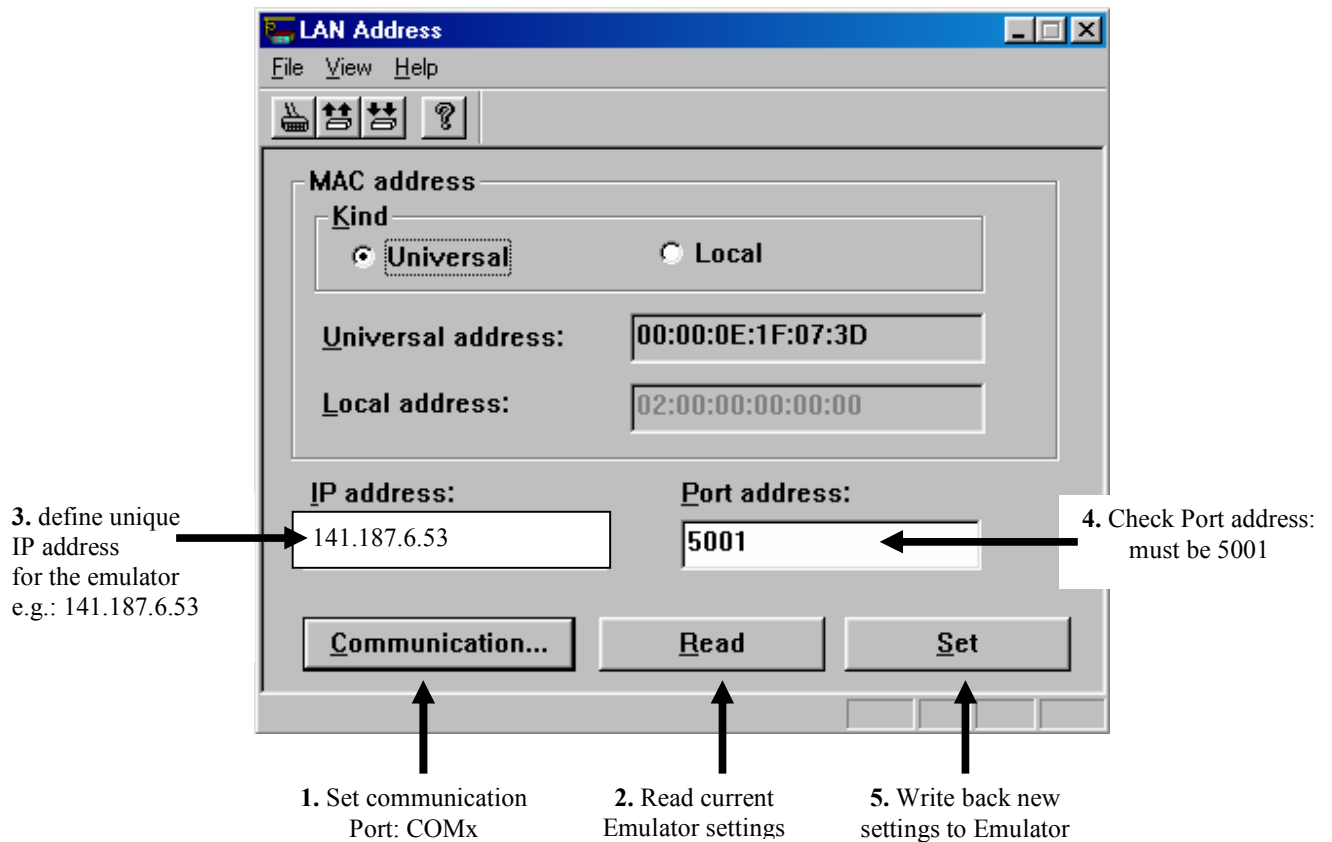
- a Fujitsu support engineer can easily help solving a concrete problem by debugging your application out of a Fujitsu support centre.
- you can control the emulator from different locations without having to move your hardware installation from one place to another.
- programm-download will be more than 6 times faster than with RS232C

Configuring the LAN-Adapter

- 1 Refer to the LAN Installation Manual coming with the LAN Adapter.
This Application Note will give only some additional informations.
- 2 Connect emulator and PC by the serial RS232-Port
- 3 Start the „LAN Address“ Program in the Softune Workbench Folder



- 4 Press „Communication“ to define the serial RS232 Port where the emulator is connected to.
- 5 Read current status from the emulator
- 6 Set the unique IP address given from your network manager. This is an very important point, every IP-address within a network has to be unique.
- 7 Check the Port address: must be 5001
- 8 Make settings valid by „Set“, and reset the emulator when prompted
- 9 Close Program „LAN Address“



Configuring Operating System “Windows”

1 Within your Windows-directory (e.g. c:\windows) you should find three files :

- *Services*
- *Hosts*
- *Lmhosts*

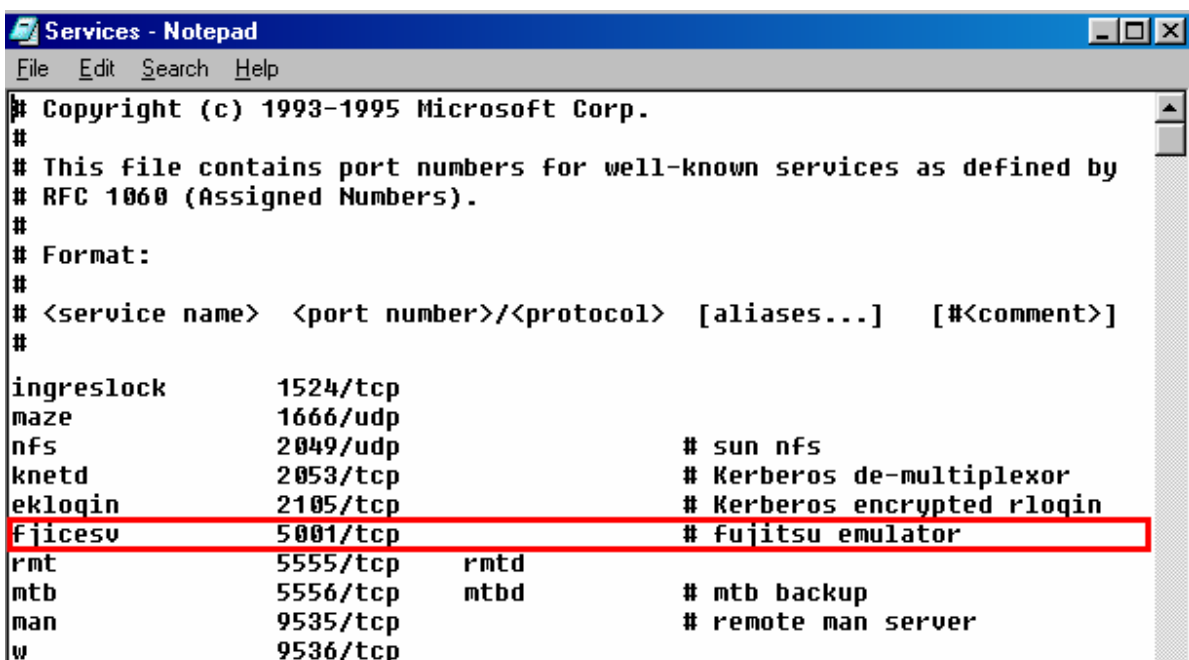
(note: all three files does not have a file-extension !)

2 Make a copy off all three files, like for an example: *services* => *sevices.old* , etc.

3 Edit file „*Services*“ and add the following line:

```
fjicesv 5001/tcp # fujitsu emulator
```

(note: if 5001/tcp is already contained in the file „*Services*“, use an unused number beginning with 5002 or greater, e.g. *fjicesv 5002/tcp*. In that case also the emulator address given by the programm „LAN address“ (see above) has to be changed !

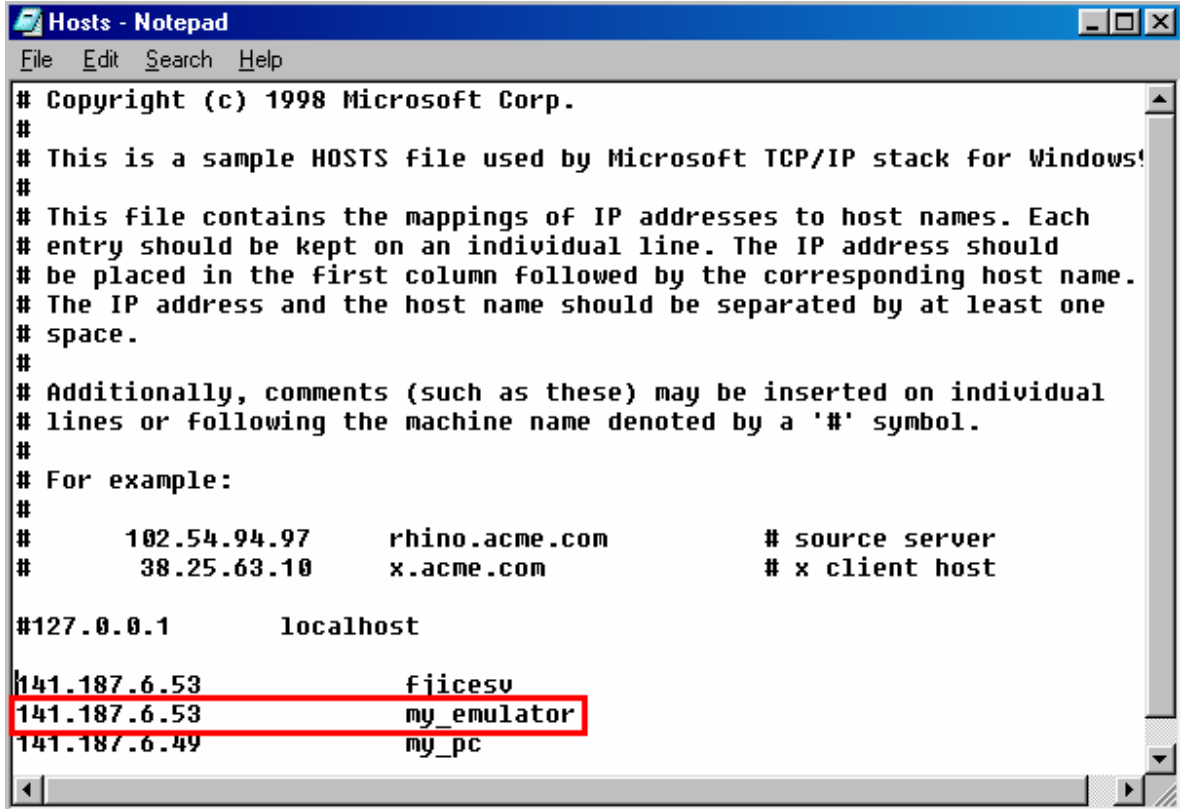


```
# Copyright (c) 1993-1995 Microsoft Corp.
#
# This file contains port numbers for well-known services as defined by
# RFC 1060 (Assigned Numbers).
#
# Format:
#
# <service name> <port number>/<protocol> [aliases...] [#<comment>]
#
ingreslock      1524/tcp
maze           1666/udp
nfs            2049/udp      # sun nfs
knetd          2053/tcp      # Kerberos de-multiplexor
eklogind       2105/tcp      # Kerberos encrypted rlogin
fjicesv        5001/tcp      # fujitsu emulator
rmt            5555/tcp      rmtd
mtb            5556/tcp      mtbd          # mtb backup
man           9535/tcp      # remote man server
w             9536/tcp
```

When saving again the file „*Services*“ get sure that your editor (e.g. notepad) will not add any extension, e.g. .txt, to your file. To get sure, use quotation marks for the filename: e.g. File save as: „*Services*“

- 4 The file „*Hosts*“ is used to make a redefinition of the complex IP-number with a simple name within your global network. This may be important if you use an DNS-Server. Of course, you can define different names for the same IP-Address, as shown below. Edit file „*Hosts*“ and add the following line:

„the unique IP address (as set by LAN-Address, see above)“ „nickname of emulator“
e.g.



```
# Copyright (c) 1998 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP stack for Windows!
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#       102.54.94.97      rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

#127.0.0.1      localhost

141.187.6.53    fjicesv
141.187.6.53    my_emulator
141.187.6.49    my_pc
```

141.187.6.53 my_emulator

When saving again the file „*Hosts*“ get sure that your editor (e.g. notepad) will not add any extension, e.g. .txt, to your file. To get sure, use quotation marks for the filename:
e.g. File save as: „*Hosts*“

- 5 The file „*Lmhosts*“ is used to make a redefinition of the complex IP-number with a simple name within your local network.

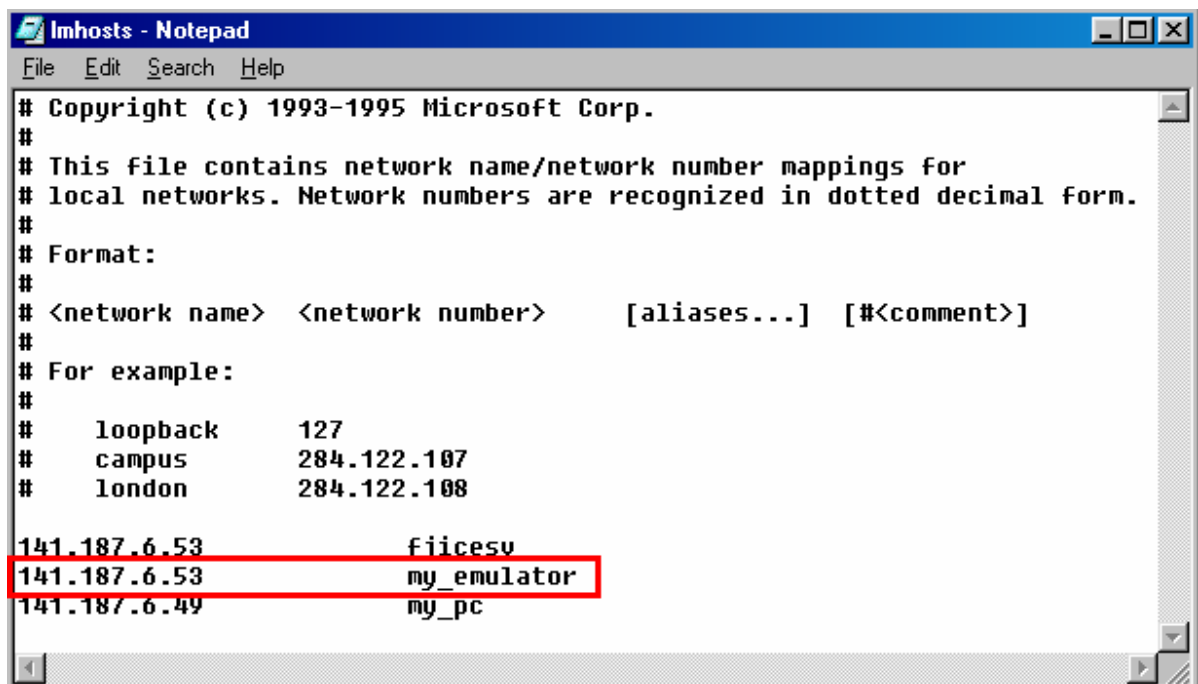
Of course, you can define different names for the same IP-Address, as shown below.

Edit file „*Lmhosts*“ and add the following line:

„the unique IP address (as set by LAN-Address, see above)“ „nickname of emulator“

e.g.

141.187.6.53 my_emulator



```
# Copyright (c) 1993-1995 Microsoft Corp.
#
# This file contains network name/network number mappings for
# local networks. Network numbers are recognized in dotted decimal form.
#
# Format:
#
# <network name> <network number>      [aliases...] [#<comment>]
#
# For example:
#
#    loopback      127
#    campus        284.122.107
#    london        284.122.108
#
141.187.6.53            fiicesu
141.187.6.53            my_emulator
141.187.6.49            my_pc
```

When saving again the file „*Lmhosts*“ get sure that your editor (e.g. notepad) will not add any extension, e.g. .txt, to your file. To get sure, use quotation marks for the filename:
e.g. File save as: „*Lmhosts*“

Checking the network-connection

Disconnect serial RS232 cable from Emulator and try to find the emulator:

- ☞ Open DOS-Window (or open RUN (Ausführen) in the Start-Menu)
- ☞ the comand „ping my_emulator“ should acknowledge with some time-values, that means the network is set up right.

The emulator with LAN-adapter is successfully integrated in the network environment and can be used by the Softune Workbench.

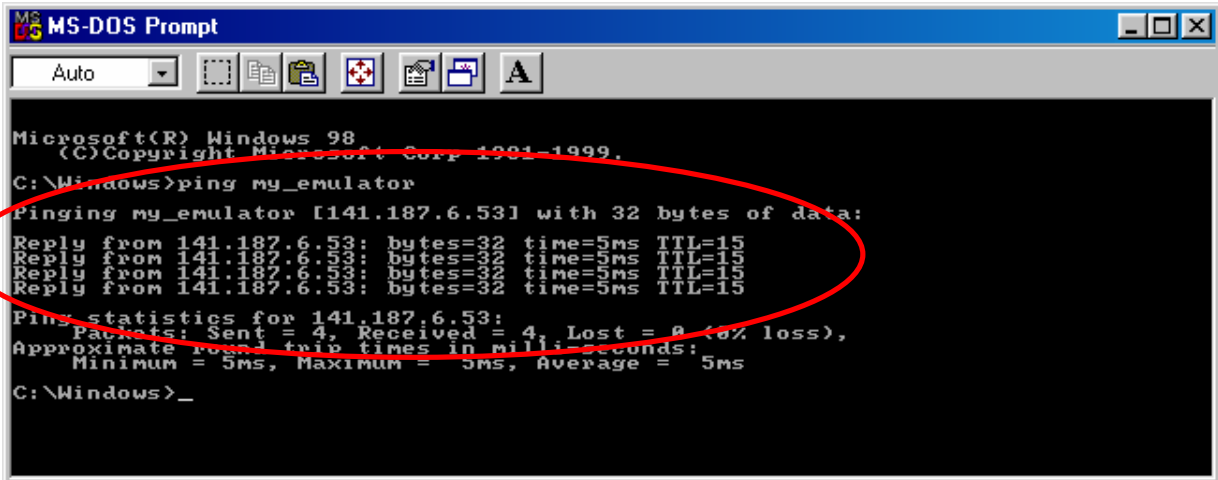
Troubleshooting

If the command „ping my_emulator“ will reply with a timeout-message, try to find the emulator by its IP-address: Type command „ping IP-address“, e.g. „ping 141.187.6.53“.

If this will work, then check settings (nickname and IP-address) within „Lmhosts“ and „Hosts“. If neither nickname (my_emulator) nor IP-address will work, check settings done by the program „LAN-address“ and check the file „Services“.

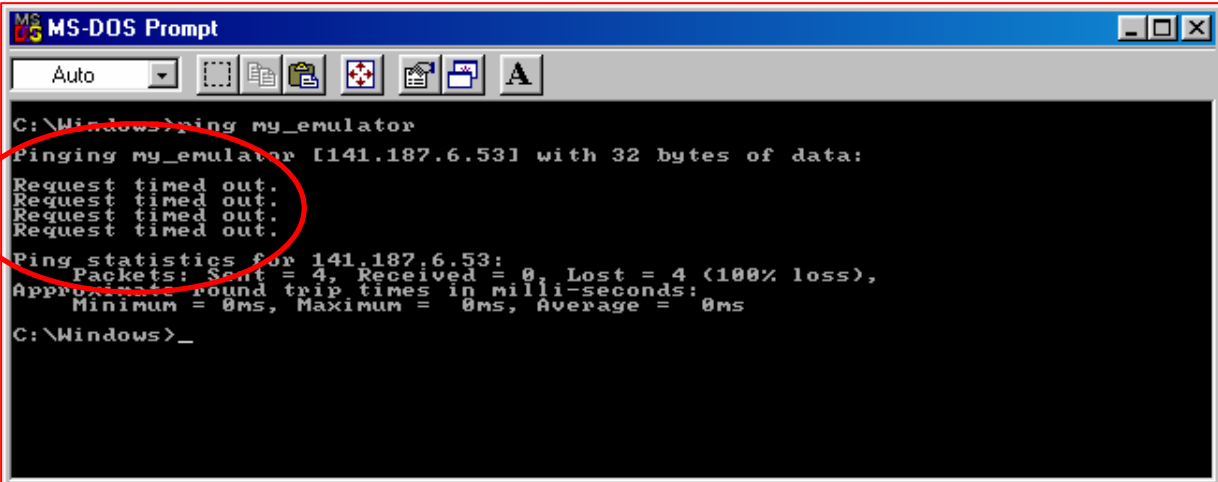
Also check your physical network interconnection cables. Please keep in mind, that the emulator only works with 10Mbit/s. This means in case that for a 100Mbit/s network a 100Mbit/10Mbit - HUB is needed. When using a HUB for 10Base-T then a standard (1:1) network cable has to be used. If the emulator is connected directly to the PC a „crossed network cable“ is necessary.

„good“-answer: Emulator/LAN-adapter replies with time-values:



```
MS-DOS Prompt
Auto
Microsoft(R) Windows 98
(C) Copyright Microsoft Corp 1991-1999.
C:\Windows>ping my_emulator
Pinging my_emulator [141.187.6.53] with 32 bytes of data:
Reply from 141.187.6.53: bytes=32 time=5ms TTL=15
Reply from 141.187.6.53: bytes=32 time=5ms TTL=15
Reply from 141.187.6.53: bytes=32 time=5ms TTL=15
Reply from 141.187.6.53: bytes=32 time=5ms TTL=15
Ping statistics for 141.187.6.53:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 5ms, Average = 5ms
C:\Windows>_
```

„failed“-answer: Emulator/LAN-adapter replies with timeout message:



```
MS-DOS Prompt
Auto
C:\Windows>ping my_emulator
Pinging my_emulator [141.187.6.53] with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 141.187.6.53:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Windows>_
```

Softune Workbench

Within the Softune Workbench the LAN interface can be used instead of a serial RS232C communication. Detail-Host: can be the „nickname“ as defined in the files „Hosts“ and „Lmhosts“ or the IP-address of the emulator, set by the program „LAN-Address“, can be used.

