Revision History

<table>
<thead>
<tr>
<th>Doc. Rev.</th>
<th>Date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Nov. 2016</td>
<td>Updated cabling diagrams and instructions, ordering info.</td>
</tr>
<tr>
<td>3.0</td>
<td>Mar. 2016</td>
<td>softMC initial release</td>
</tr>
<tr>
<td>2.2</td>
<td>24 Sept. 2015</td>
<td>Weight specification updated.</td>
</tr>
<tr>
<td>2.1</td>
<td>10 June 2015</td>
<td>Minor fix. Updated ordering options.</td>
</tr>
<tr>
<td>2.0</td>
<td>27 May 2015</td>
<td>Wiring info. Updates.</td>
</tr>
<tr>
<td>1.0</td>
<td>1 Sept. 2014</td>
<td>Initial release</td>
</tr>
</tbody>
</table>

Copyright Notice

© 2016 Servotronix Motion Control Ltd.
All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means without prior written permission of Servotronix.

Disclaimer

This product documentation was accurate and reliable at the time of its release. Servotronix Motion Control Ltd. reserves the right to change the specifications of the product described in this manual without notice at any time.

Trademarks

softMC 7 and ControlStudio are trademarks of Servotronix Motion Control Ltd.
CANopen and CiA are registered trademarks of the CAN in Automation User's Group
EtherCAT is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH
Windows is a registered trademark of Microsoft Corporation

Contact Information

Servotronix Motion Control Ltd.
21C Yagia Kapayim Street
Petach Tikva 49130, Israel
Tel: +972 (3) 927 3800
Fax: +972 (3) 922 8075
Website: www.servotronix.com

Technical Support

If you need assistance with the installation and configuration of the softMC 7 controller, contact Servotronix Technical Support: tech.support@servotronix.com
### Ordering Options

**softMC Motion Controller**

**Number of Axes**
- 04, 06: 4, 6 axes
- 08, 16, 32: 8, 16, 32 axes
- Other number of axes available upon request

**Fieldbus**
- **E**: EtherCAT
- **C**: CANopen
- **B**: EtherCAT and CANopen (softMC 702 only)

**Hardware Options**
- 301: softMC 3 – ARM, for 4 to 6 axes
- 702: softMC 7 – Atom, for 8 to 32 axes
- 705: softMC 7 – CORE i5, for 8 to 32 axes – Check availability – contact Servotronics

**Software Add-On**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW-MC03-CODESYS</td>
<td>IEC 61131 CODESYS for softMC 3 – upcoming</td>
</tr>
<tr>
<td>FW-MC07-CODESYS</td>
<td>IEC 61131 CODESYS for softMC 7</td>
</tr>
</tbody>
</table>
Contents

1 Product Description .................................................................................................................. 7
  1.1 Product Overview................................................................................................................ 7
  1.2 Product Package.................................................................................................................. 7
  1.3 Technical Specifications..................................................................................................... 8
  1.4 Dimensions....................................................................................................................... 9

2 Safety ..................................................................................................................................... 10
  2.1 Anti-Static Precautions..................................................................................................... 10
  2.2 Installation Precautions..................................................................................................... 10
  2.3 General Safety Precautions............................................................................................... 11

3 Installation Preparation ........................................................................................................ 12
  3.1 Required Computer System............................................................................................. 12
  3.2 IP Address........................................................................................................................ 12
  3.3 Required Tools.................................................................................................................. 12
  3.4 Required Cables................................................................................................................ 12
  3.5 Interfaces.......................................................................................................................... 13
    3.5.1 Front Panel................................................................................................................ 13
    3.5.2 Top Panel.................................................................................................................. 15

4 Installation Procedure .......................................................................................................... 17
  4.1 Mounting (Optional)........................................................................................................ 17
  4.2 Cable Connections............................................................................................................ 18
  4.3 Connecting softMC 7 and CDHD – CANopen Models....................................................... 19
  4.4 Connecting softMC 7 and CDHD – EtherCAT Models....................................................... 21
  4.5 Connecting softMC 7 and stepIM – CANopen Models..................................................... 22
  4.6 ControlStudio Software Installation............................................................................... 23
  4.7 Serial Communication...................................................................................................... 24
  4.8 IP Address........................................................................................................................ 27
    4.8.1 Get an IP Address from a DHCP Server................................................................... 27
    4.8.2 Manually Assign an IP Address Using ControlStudio........................................... 27
    4.8.3 Define a Fixed IP Address....................................................................................... 29
1 Product Description

1.1 Product Overview

The softMC 7 is a multi-axis motion control software and hardware package offering extensive programming capabilities for a variety of automation and robotics applications.

1.2 Product Package

The softMC 7 is supplied with the components listed in the following table.

<table>
<thead>
<tr>
<th>Table 1-1. Product Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image</td>
</tr>
<tr>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>

If any of the components in this list are missing, do not proceed with the installation. Contact Technical Support.

**Note:** Power supply adapter and cables are not included in the softMC 7 package.
# 1.3 Technical Specifications

## Table 1-2. Technical Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td>1.86 GHz Intel® Atom™ N2800 dual-core processor</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® NM10</td>
</tr>
<tr>
<td>Memory</td>
<td>1 x 2 GB 204-pin 1066 MHz DDR3 SO-DIMM (system max. 4 GB)</td>
</tr>
<tr>
<td>Ethernet Controller</td>
<td>Dual GbE by Realtek RTL8111E controllers</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td></td>
</tr>
<tr>
<td>CompactFlash®</td>
<td>1 x CompactFlash card slot, Industrial grade, single level cell (SLC) CF card, factory-installed softMC 7 firmware</td>
</tr>
<tr>
<td>SATA (not used)</td>
<td>mSATA and SATA DOM support</td>
</tr>
<tr>
<td><strong>I/Os and Indicators</strong></td>
<td></td>
</tr>
<tr>
<td>Ethernet</td>
<td>2 x RJ45 ports</td>
</tr>
<tr>
<td>RS232</td>
<td>2 x DB9 serial ports with 3 kV isolation protection</td>
</tr>
<tr>
<td>RS422/RS485</td>
<td>2 x DB9 serial ports with 3 kV isolation protection</td>
</tr>
<tr>
<td>CAN Bus</td>
<td>1 x Phoenix terminal block with 3 kV isolation protection (supports 2-port CAN bus)</td>
</tr>
<tr>
<td>USB</td>
<td>Not used</td>
</tr>
<tr>
<td>Display</td>
<td>Not used</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>Not used</td>
</tr>
<tr>
<td>Display OLED</td>
<td>OLED</td>
</tr>
<tr>
<td>Buttons</td>
<td>Power, Reset</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td></td>
</tr>
<tr>
<td>Power Input</td>
<td>9V–28V DC (3-pin terminal block)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td><a href="mailto:12V@1.85A">12V@1.85A</a></td>
</tr>
<tr>
<td>AT/ATX Mode</td>
<td>Must remain in AT mode</td>
</tr>
<tr>
<td></td>
<td>Do not change manufacturer’s setting</td>
</tr>
<tr>
<td><strong>Environmental and Mechanical</strong></td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN rail, desktop</td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>-25°C–65°C (with SSD)</td>
</tr>
<tr>
<td>Storage Temp.</td>
<td>-25°C–70°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>5%–95%, non-condensing</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Extruded aluminum alloy for fanless support</td>
</tr>
<tr>
<td>Chassis Color</td>
<td>Black</td>
</tr>
<tr>
<td>Operating Shock</td>
<td>Half-sine shock test 5G/11ms, 3 shocks per axis</td>
</tr>
<tr>
<td>Operating Vibration</td>
<td>MIL-STD-810F 514.5 C-1 (HDD), MIL-STD-810F 514.5 C-2 (SSD)</td>
</tr>
<tr>
<td>Safety</td>
<td>CE/FCC</td>
</tr>
<tr>
<td>Weight</td>
<td>1.5 kg</td>
</tr>
<tr>
<td>Physical Dimensions</td>
<td>59.4 mm x 170 mm x 140 mm (WxHxD)</td>
</tr>
</tbody>
</table>
1.4 Dimensions

Figure 1-1. softMC 7 Dimensions
2 Safety

Failure to follow the safety instructions may result in personal injury and/or equipment damage.

2.1 Anti-Static Precautions

Warning. Failure to take ESD precautions during installation of the softMC 7 may result in permanent damage to the equipment and/or serious injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the softMC 7. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the softMC 7 or any other electrical component is handled, the following anti-static precautions must be strictly followed.

- **Wear an anti-static wristband**: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- **Self-grounding**: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad**: When configuring the softMC 7, place it on an anti-static pad. This reduces the possibility of ESD damaging the softMC 7.

2.2 Installation Precautions

Before beginning the installation, be sure you are aware of the following precautions.

- **Read the installation guide**: This guide provides installation instructions and configuration options for the softMC 7.
- **Disconnect Power**: Power to the softMC 7 must be disconnected during the installation process. Failing to disconnect the power may cause severe injury to the body and/or damage to the system.
- **Qualified Personnel**: The softMC 7 must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the softMC 7. The softMC 7’s cooling vents must not be obstructed by any objects. Blocking the vents can cause overheating of the softMC 7. Leave at least 5 cm of clearance around the softMC 7 to prevent overheating.
- **Grounding**: The softMC 7 must be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label on the softMC 7 rear panel.
2.3 General Safety Precautions

Be sure to heed the following safety precautions at all times.

- Do not attempt to open the softMC 7. There are no internal components intended for user access.
- Handle the softMC 7 gently, and avoid dropping or hitting it against hard objects or surfaces.
- Do not strike or exert force on the LCD panel, or touch it with a sharp object.
- Make sure power is turned off and the power cord is disconnected when moving, installing or configuring the system.
- Do not apply voltage levels that exceed the specified voltage range. Doing so may cause an electrical shock and/or fire.
- Do not insert any objects into the ventilation openings, or block the vents in any way.
- Do not use the softMC 7 in a site where the ambient temperature exceeds the rated temperature.
- If considerable amounts of dust, water, or fluids enter the system, turn off the power supply immediately, unplug the power cord, and contact Servotronix technical support: tech.support@servotronix.com
3 Installation Preparation

3.1 Required Computer System

The following computer system and software are required:

- Operating system: Windows XP-SP3, or Windows 7
- LAN connection
- Internet connection (for software download and help)
- ControlStudio, the graphical software interface for configuring and testing the drive. Download from the Servotronix website or contact Servotronix technical support: tech.support@servotronix.com

3.2 IP Address

The softMC 7 factory-defined configuration requires a LAN with DHCP IP address assignment.

Check with the IT manager at your site and make sure the softMC 7 will be able to connect to your site’s LAN, and will be able to get an IP address from a DHCP server.

3.3 Required Tools

- A small slotted screwdriver for connecting terminal blocks.
- A Phillips screwdriver for mounting the controller on DIN rails.

3.4 Required Cables

- For **serial** communication: Serial cables
- For **CAN**: Shielded twisted pair cables, modified with wires connected directly to CAN interface on softMC 7. Refer to Figure 4-6.
- For **EtherCAT**: Shielded Cat 5e cables and shielded RJ45 connectors.

**Note**

System setup requires shielded Cat 5e cables and shielded connectors with latching mechanism. Improper cables and connectors will cause bus fault and/or servo drive errors.
3.5 Interfaces

3.5.1 Front Panel

![Front Panel Diagram]

- Programmable OLED Display
- Function Keys
- Ethernet (LAN)
- RS422 / RS485 (COM 3)
- USB 2.0 (4 ports) Not used
- EtherCAT
- RS232 (COM 1)
- Diagnostic Port 115200/8-N-1
- Activity Link LED
- CompactFlash (CF) Card Slot Cover - DO NOT OPEN

**Figure 3-1. Interfaces – Front Panel**
**COM1|COM2**

Standard DB9 connector.

**Table 3-1. RS232 Interface**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD – Data Carrier Detect</td>
<td>6</td>
<td>DSR – Data Set Ready</td>
</tr>
<tr>
<td>2</td>
<td>RXD – Received Data</td>
<td>7</td>
<td>RTS – Request to Send</td>
</tr>
<tr>
<td>3</td>
<td>TXD – Transmitted Data</td>
<td>8</td>
<td>CTS – Clear to Send</td>
</tr>
<tr>
<td>4</td>
<td>DTR – Data Terminal Ready</td>
<td>9</td>
<td>RI – Ring Indicator</td>
</tr>
<tr>
<td>5</td>
<td>GND – Signal Ground</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COM3|COM4**

Standard DB9 connector.

**Table 3-2. RS422|RS485 Interface**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RS422_TX –</td>
<td>RS485_D –</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>RS422_TX +</td>
<td>RS485_D +</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>RS422_RX+</td>
<td>8</td>
<td>Not used</td>
</tr>
<tr>
<td>4</td>
<td>RS422_RX</td>
<td>9</td>
<td>Not used</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.5.2 Top Panel

Figure 3-2. Interfaces – Top Panel

CAN Bus

Table 3-3. CAN Interface

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CAN1_H</td>
<td>2</td>
<td>Not used</td>
</tr>
<tr>
<td>3</td>
<td>CAN1_L</td>
<td>4</td>
<td>Not used</td>
</tr>
<tr>
<td>5</td>
<td>CAN1_GND</td>
<td>6</td>
<td>Not used</td>
</tr>
</tbody>
</table>

- CAN Bus (CAN 1)
- CAN Bus (CAN 2)
- CompactFlash (CF)
- Card Slot Cover
- DO NOT OPEN
- Power Button
- ATX/AT Switch
  - Always set to AT
- Reset Button
- 9–28V DC Input
- 8-bit Digital I/Os
  - Not used
- VGA
  - Not used
Table 3-4.  CAN Mating Connector

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Phoenix Contact</td>
</tr>
<tr>
<td>Manufacturer PN</td>
<td>MC 1, 5/ 3-STF-3, 5 (1847068) (supplied)</td>
</tr>
<tr>
<td>Servotronix PN</td>
<td>CONr10000003-09</td>
</tr>
<tr>
<td>Wire gauge</td>
<td>14-30 AWG</td>
</tr>
</tbody>
</table>

**DC Input**

Table 3-5.  DC Input Interface

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9–28V Input</td>
</tr>
<tr>
<td>2</td>
<td>9–28V Input</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
</tbody>
</table>

Table 3-6.  DC Input Mating Connector

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Phoenix Contact</td>
</tr>
<tr>
<td>Manufacturer PN</td>
<td>MC 1, 5/ 3-STF-3, 5 (1847068) (supplied)</td>
</tr>
<tr>
<td>Servotronix PN</td>
<td>CONr10000003-09</td>
</tr>
<tr>
<td>Wire gauge</td>
<td>14-30 AWG</td>
</tr>
</tbody>
</table>
4 Installation Procedure

4.1 Mounting (Optional)

The softMC 7 system can be mounted onto a DIN rail. Follow the steps below to complete the task.

1. Attach the supplied DIN rail mounting bracket to the softMC 7 rear panel. Secure the bracket with three retention screws:

![Figure 4-1. DIN Rail Mounting Bracket](image1)

1. Attach the upper edge of the DIN rail to the mounting bracket:

![Figure 4-2. Attach the DIN Rail to the Mounting Bracket](image2)
2. Push the DIN rail inward until it clips in place:

![Figure 4-3. Mounting the DIN Rail](image)

4.2 Cable Connections

Refer to the system wiring diagrams and to the Connectors and Pinouts diagram in Chapter 1.

- Connect the softMC 7 COM1 serial port to the PC serial port using a serial cable. This connection is needed for setting the IP address of the softMC 7.
- Connect the softMC 7 Ethernet (LAN) port to the site’s LAN network (or connect directly to the PC) using a shielded Cat 5e cable.
- Connect the softMC 7 EtherCAT port to one or more drives and/or I/O modules. See following sections.
- Connect softMC 7 to 24V power supply.

Do not yet turn on the softMC 7.
4.3 Connecting softMC 7 and CDHD – CANopen Models

Be sure to use shielded Cat 5e cables and shielded RJ45 connectors.

1. Remove the RJ45 connector from one end of the shielded Cat 5e cable.
2. Connect cable wires 1, 2 and 3 to pins 1, 3 and 5, respectively, on the softMC 7 CAN interface.

<table>
<thead>
<tr>
<th>CAN Function</th>
<th>softMC 7 Connector Pin</th>
<th>Cat 5e Cable RJ45 Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN1 High</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CAN1 Low</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>CAN1 Ground</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 4-4. Example of Setup with CDHD in CAN Network
3. A 120 Ω termination resistor is required at both ends of the CAN bus network between CAN_L and CAN_H. This is the responsibility of the user.

4. On the CDHD make sure the 120 Ω termination switch is set away from T.

**Note** The Cat 5e cable wiring scheme can be either T568A or T568B.
4.4 Connecting softMC 7 and CDHD – EtherCAT Models

To connect the controller and drives, simply connect RJ45 connectors from drive to drive.

Be sure to use shielded Cat 5e cables and shielded RJ45 connectors.

Figure 4-7. Example of Setup with CDHD in EtherCAT Network
4.5 Connecting softMC 7 and stepIM – CANopen Models

To connect the controller and drives, follow the cabling and connection instructions in the section Connecting softMC 7 and CDHD – CANopen Models.

Figure 4-8. Example of Setup with stepIM in CAN Network
4.6 ControlStudio Software Installation

ControlStudio software is a development tool for motion applications. It contains a programming editor, data recorder, debugger and monitoring tools.


2. Run the ControlStudioSetup.exe file to install ControlStudio on the host computer.

When installation is complete, start ControlStudio from the software icon on your desktop.

Figure 4-9. ControlStudio

ControlStudio Documentation

Use the ControlStudio Help button to access the online software documentation.

The password that allows access to the help files is installed during the ControlStudio software installation.
4.7 Serial Communication

To define the serial communication parameters, use a serial console program, such as PuTTY.

Note: The default login for serial console is mc. It provides all required permissions for system setup and configuration.

1. Configure the softMC 7 serial port according to the settings shown in the following figures. After setting the parameters, click Open.

Figure 4-10.
2. Make sure the serial cable is connected between the softMC 7 COM1 port and the PC.

3. Turn on the softMC 7.
   Several seconds after power up, softMC 7 issues a short beep.
   After the firmware has loaded, softMC 7 issues a long beep to indicate a successful initialization. Firmware loading may take from 15 seconds to 2 minutes, depending on the speed of the DHCP server.
   If initialization fails, softMC 7 issues two long beeps.

4. Watch the serial console screen, and wait for the prompt at the end of the softMC 7 initialization.
   Enter the instruction: `/sbin/ifconfig`
Figure 4-12.

The following output is displayed:

```
Figure 4-13.

Note that `inet addr` in the section `eth0` will show the current IP address of the softMC 7 that you are using, and not `10.4.20.210` as in these examples.
4.8 IP Address

The IP address of the softMC 7 can be defined in any of three ways.
- DHCP – assigned by DHCP server – recommended
- Fixed IP address – assigned by user
- Manual IP address – assigned by ControlStudio

4.8.1 Get an IP Address from a DHCP Server

The softMC 7 is factory-configured to get the IP address from the DHCP server by default.

4.8.2 Manually Assign an IP Address Using ControlStudio

Note: The host PC’s IP address must be in the same subnet as the addresses in the ControlStudio IP pool.

1. Start ControlStudio software.
   Note the tabs on the right side of the screen:

   ![Figure 4-14.]

   1. Click the **Settings** tab.
      In the Settings pane, go to Connector Monitor, and set **TCP/IP connection** to **Automatic IP**.

   ![Figure 4-15.](image)
ControlStudio now sends a broadcast over the network, searching for all softMC 7 controllers present on the network. softMC 7 controllers that do not yet have an IP address are assigned an IP address from the IP Pool file.

**Notes:** The IP Pool file must contain a list of IP addresses that the network administrator has explicitly excluded from the DHCP range and reserved exclusively for use by softMC 7 controllers.

2. Click the **Controller Monitor** tab.
   All softMC 7 controllers that are present on the network are displayed in the list, together with the manual IP address assigned to each of them.

![Figure 4-16.](image)

3. To connect to a softMC 7 controller, select it from the list and double-click.
   Once the connection is established, the name and IP of the softMC 7 are displayed in the status bar at the bottom of the screen, highlighted in green.

![Figure 4-17.](image)
### 4.8.3 Define a Fixed IP Address

**Note:** The host PC’s IP address and the softMC 7 must be in the same address space.

1. Using the text editor over the serial (RS232) connection, create the file FWCONFIG (no extension, upper case):
   ```
   nano/FFS0/FWCONFIG
   ```

2. Enter the following instructions:
   ```
   ipaddressmask aaa.bbb.ccc.ddd:eee.fff.ggg.hhh
   sleep 20
   ramdisksize=64 mByte
   StringPreload=30000
   ```
   Where `aaa.bbb.ccc.ddd:eee.fff.ggg.hhh` holds the permanent IP address and subnet mask that will be assigned to the softMC 7.

![Figure 4-18.](image)

3. Press `<Ctrl>+X`
   A message will prompt you to save the new file.
4. Click **Y**.
   The file is saved, and the prompt returns to the command line.

5. Now reset the softMC 7. It will boot up with the permanent IP address you defined.

A fixed IP address can be changed from the application or in CONFIG.PRG, using the MC-Basic command `SYS.IPADDRESSMASK`. 
softMC 7
Multi-Axis Motion Controller
Installation Guide