miroVIDEO 22SD

USER'S GUIDE

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miroVIDEO 22SD
User's Guide
Version 1.0/GB. September 1996
700472

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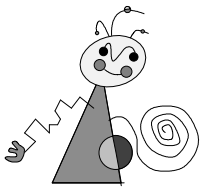
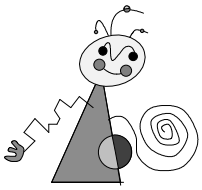


Contents

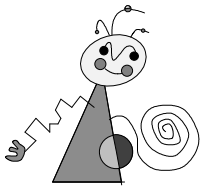


For your own safety

In the interest of your own safety and the flawless functioning of your new product and computer system please note the following:

- Before opening the computer make sure that the power plug is disconnected from the main socket.
- Computer components are sensitive to static charge. Divert any electrostatic charge from your person before touching the components with your hands or any tools.
- Make sure that the components you want to add to the computer are in compliance with the computer's characteristics.
- Avoid address conflicts!

For changes that have occurred after the manual has been printed, refer to the README file/s on the CD-ROM supplied with your system!



About the manual

This manual explains how to install and use the miroVIDEO 22SD hardware and software.

Subheadings In the margins are subheadings to help you quickly find your way through this manual.

Important text passages are marked with this “notepad” and this format.

Numbers mark step by step instructions:

1. Start Windows.

All keyboard commands appear in this font:

`install`<↵>

<↵> represents the enter key.

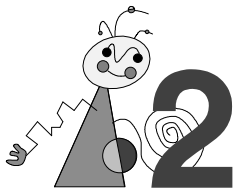
Menus, commands, options or buttons which the user can select are written in *italics.*

Overview

FEATURES

The powerful miroVIDEO 22SD graphics board has all capabilities regarding accelerated digital video playback.

- **Graphics acceleration**
  The miroVIDEO 22SD graphics board is equipped with the S3 TRIO64V+ graphics processor to improve the performance of applications running under Windows.
- **Multimedia acceleration**
  For digital video applications a video processor is integrated in the graphics processor which enables an optimal playback of digital video. The processor can scale video continously up to a size of 1024 x 768 pixels without producing jerky playback and losing frames.
  When enlarging video the pixels are not just multiplied but the additional pixels are calculated, this technique achieves a very good image quality even at high resolutions.
- **DCI**
  Video for Windows 1.1e supports Microsoft´s new DCI technology (**D**evice **C**ontrol **I**nterface). DCI allows the video software to directly access the miroVIDEO 22SD hardware and to accelerate the image refresh considerably. The GDI (**G**raphics **D**evice **I**nterface), which has been responsible for the image refresh up to this time, is omitted.
- **Video memory**
  The miroVIDEO 22SD video memory allows you to work efficiently under Windows and in CAD applications. miroVIDEO 22SD provides 2 MB of fast EDO-RAM version.
- **Drivers**
  miroVIDEO 22SD includes all of the necessary drivers to achieve the maximum performance from your system. In addition, the miro tools are provided.
- **Power Management**
  miroVIDEO 22SD supports VESA DPMS Power Management for today's monitors with Power Management. In this way, monitors can turn themselves off after a preset time interval to prolong their life and save energy.
- **Monitor plug & play support**
  The miroVIDEO 22SD graphics processor supports the VESA **D**isplay **D**ata **C**hannel (DDC). A monitor complying with this standard transmits its characteristics via this interface and starts up with an appropriate resolution.



Before you begin

SYSTEM REQUIREMENTS

To install miroVIDEO 22SD, your computer system has to meet the following requirements:

Computer A 486 or Pentium computer or compatible with a PCI Local Bus slot.

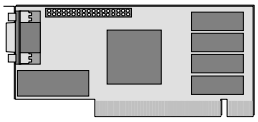
Monitor To be able to take full advantage of the miroVIDEO 22SD board, you need a multifrequency monitor which supports a horizontal frequency of 64 kHz or more and is equipped with separate inputs for the horizontal and vertical sync signals. A suitable monitor can be obtained by miro.

To enable the data transfer between the monitor and the graphics board, you need a DDC-capable monitor cable.

Software Windows 3.1x, Windows 95, or Windows NT.

PACKAGE CONTENTS

Before beginning the miroVIDEO 22SD installation, please check to make sure your miroVIDEO 22SD package is complete*:



Graphics board**

CD-ROM

Driver, programs, documentation on CD-ROM

Quick installation guide

If any parts are missing, please consult your dealer. The complete software and documentation are contained on the CD-ROM: diskettes do not belong to the package contents.

Installation disks You can easily create installation disks using the miroSETUP-Manager included in the package contents. You can also download the disks using the miro support mailbox.

* Depending on the delivery scope, the actual package contents may be different from the package contents listed in the manual.

** For model and serial number of your miro graphics board, refer to the label on the graphics board.

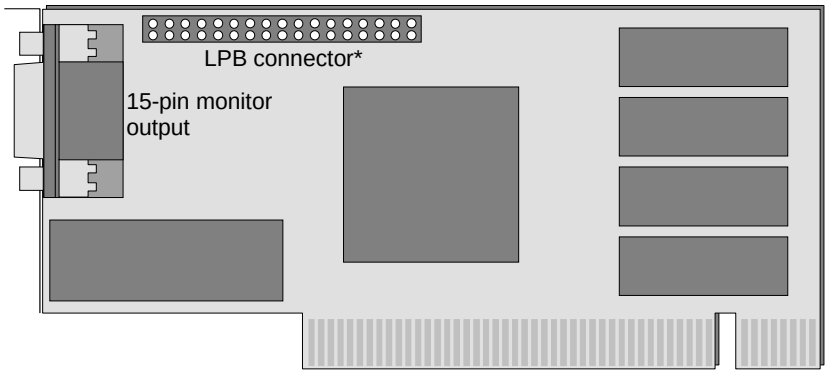
Hardware installation

INSTALLED VGA

The board´s graphics chip has an integrated VGA component that cannot be turned off. Before the installation, however, any existing VGA board or motherboard VGA has to be removed from the computer or disabled.

Graphics boards are sensitive to static charge. To avoid damage that may occur by static charge, leave the graphics board in its antistatic packaging until installation. Keep the packaging for possible future transportation.

miroVIDEO 22SD BOARD LAYOUT



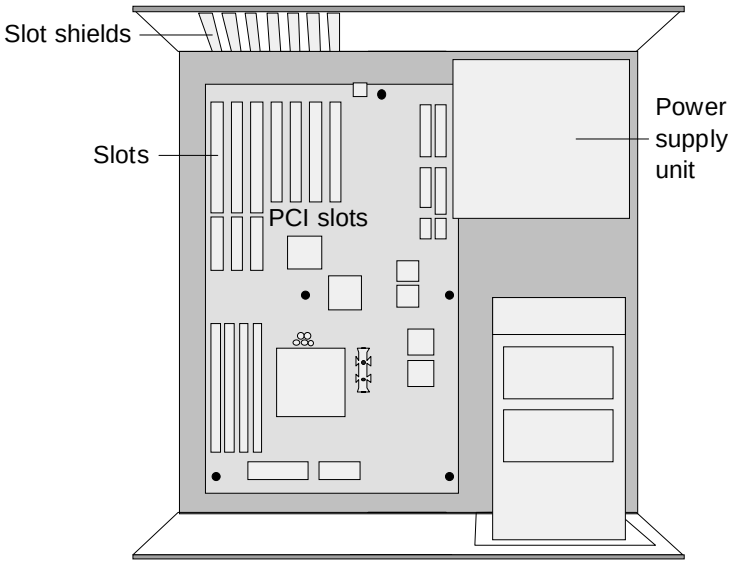
* The board layout may differ from the one illustrated here.

INSERTING miroVIDEO 22SD

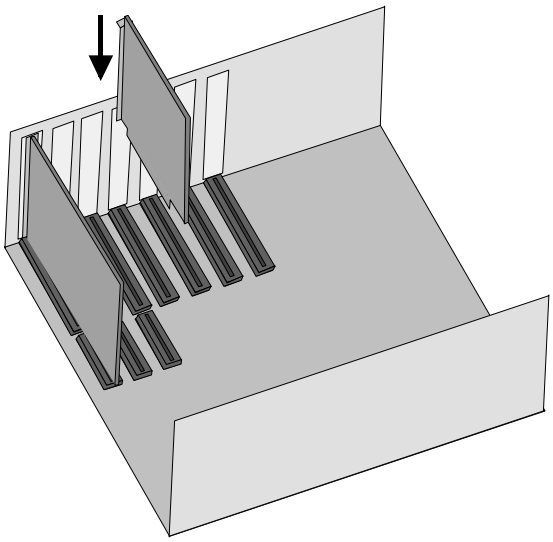
The only tool you need for the installation is a screwdriver.

1. Discharge yourself of static charge by touching the computer´s casing.
2. Turn off your computer and all peripheral devices. Disconnect the computer from the power supply and all necessary components.
3. Loosen the screws of the computer's cover and remove it.
4. If necessary, remove the VGA board from the computer or disable the motherboard VGA.

5. Select a free PCI slot. Remove the slot's cover at the back of the computer. Save the screws of the cover.

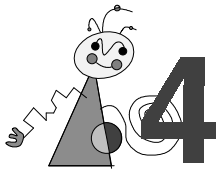


6. Carefully insert the graphics board into PCI slot by holding the board at the top and gently pushing both ends into the slot at the same time. Press onto the upper edge of the board to make sure it is firmly seated in the slot.



Don't force the board into the slot! You run the risk of bending the contacts. If the board does not fit easily, pull it back out, and try again.

7. Fasten the board's bracket at the back of the computer using the screws you saved from the shield.
8. Put the cover back on the computer and reconnect the peripheral devices.



Overview: Software installation

INSTALLING SOFTWARE FROM CD-ROM

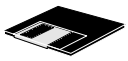
The CD-ROM includes drivers for Windows 3.1x, Windows 95, Windows NT, and the miroWINTOOLS. You will also find drivers for CAD applications and the miro3D-VIEWER (for DOS and Windows) you can use to display three-dimensional drawings in a 3D window.

For a description of the tools, refer to the miroWINTOOLS online help.

miroSETUP-Manager

To install the miro drivers and programs from CD-ROM under Windows, you need the miroSETUP-Manager contained on the CD-ROM. If further installation programs are started during the installation, the miroSETUP-Manager will be minimized (Windows 3.1) or located in the task bar (Windows 95). To resize the miroSETUP-Manager double-click (Windows 3.1x) / click (Windows 95) the icon. After the installation is complete, restart Windows.

INSTALLING THE SOFTWARE FROM DISKETTE



The CD-ROM includes drivers for Windows 3.1x, Windows 95, Windows NT, and the miroWINTOOLS. You also find drivers for CAD applications, the miro3D-VIEWER (for DOS and Windows), you can use to display three-dimensional drawings in a 3D window.

Installation disk(s)

You can easily create installation disks using the miroSETUP-Manager included in the package contents. You can also download the disks using the miro support mailbox.

Windows 95

The miro driver for Windows 95 can only be installed from the CD-ROM. There is **no possibility** to create installation disks for Windows 95.

Creating installation disk(s)

To create installation disks, you need a formatted 3,5" disk. Proceed as follows:

1. If you have not done so already, start Windows 95.
2. Insert the miro CD-ROM into the CD-ROM drive.
3. In the task bar, select the *Start* menu and the *Run...* command.
4. Depending on the CD-ROM drive you use, enter: **`d:\miro_win`**<↵>, where **`d:\`** is the drive letter of your CD-ROM drive.
5. Select the language you want to do the installation in and click *OK*.

6. In the *miroSETUP-Manager Module Selection* window, select the *Drivers and Programs* item.

   In the *miroSETUP-Manager Drivers and Programs* window you can choose for which drivers and/or programs you want to create installation disks.
7. Select the driver you want to install and click *Disk(s)*.
8. Insert the required disk(s) into the disk drive: the installation disk(s) will be created.
9. If necessary, create further installation disks.

   Use the *Quit* button to quit the miroSETUP-Manager.

INSTALLING CAD DRIVERS

The CD-ROM contains drivers for the following applications:*

Application	miro drivers
AutoCAD 9-10	miroADI
AutoCAD 11/DOS	miroGTI 12
AutoCAD 12/DOS	miroGTI 12
AutoCAD 13/DOS	miroGTI 12
AutoCAD 12/Windows 3.1	miroGTI 12 Win
AutoCAD 13/Windows 3.1x	miroGTI 13 Win
AutoCAD 13/Windows NT	miroGTI 13 Win
AutoCAD 13/Windows 95	miroGTI 13 Win
Microstation PC	Microstation drivers

CAD drivers for Windows

To install the **CAD drivers for Windows 95/3.1x/NT,** start the appropriate **Windows** version. You can install the drivers from CD-ROM or (with exceptions) from disk.

CAD drivers for DOS

You can only install the CAD drivers for **DOS** under DOS and from the diskette. For information on how to create installation disks, refer to the "Creating installation disk(s)" section in the "Overview: Software installation" section as of page 5.

Configuring the CAD drivers

After installing the miro CAD drivers, you may have to configure these.

miroGTI 12 The "miroGTI 12" (page 27) section in this manual describes the configuration and all functions.

miroGTI 13 Win You will find general information on miroGTI 13 Win in this manual (page 31). For detailed instructions on the configuration and a detailed description of the functions, refer to the online help supplied for this driver.

* Depending on the delivery scope, the CD-ROM content may differ from the one listed above.

miroADI To configure miroADI, read the “miroADI” section (page 37).

MicroStation PC If you installed the miro MicroStation PC driver, you will find the configuration in the “MicroStation PC” section (page 39).

READING AND PRINTING THE DOCUMENTATION

The *Documentation* menu item *miroSETUP-Manager Module Selection* lets you install the Adobe Acrobat Reader, you can use to view and print the complete documentation. For information on how to start the miroSETUP-Manager and to go to the *Module Selection* window, refer to the previous section “Creating installation disk(s)”.

When you clicked *Documentation* in the miroSETUP-Manager *Module Selection* and confirmed by clicking *Install...*, the Adobe Acrobat Reader installation program is started.

1. To install the Acrobat Reader, follow the instructions of the installation programs.

   After restarting the computer, the Acrobat Reader program group will be available. This program group contains the Acrobat Reader program as well as the icons for the detailed documentation.

2. Double-click the icon to open the documentation you want to read.

Bookmarks Selecting *View* and the *Bookmarks and Page* command will show you the contents for the manual. You can click the heading and you go directly to the corresponding chapter. A ▷ sign next to the heading indicates that there are further subheadings which become visible by clicking the ▷ icon.

Printing To print the file, select the *Print...* command in the *File* menu and print the documentation.

Another language If you want to view/print the documentation in another language, select the *File* menu and the *Open...* command. You will recognize the language by the extension: _d (German), _e (English), _f (French). You will find all files on the CD in the \MANUAL directory.

Other modules If you want to install other modules after you have installed the Acrobat Reader, restart the miroSETUP-Manager.

Installing Windows 95 drivers

Before you can install the miro **drivers** for Windows 95, you have to configure your system for **VGA**. On how to do this, refer to the documentation of your system.

WINDOWS 95 DRIVERS (CD-ROM)

Alternatively to the installation procedure outlined in the following, you can also install the miro drivers using the *Display Properties* dialog box (Windows-like). This installation procedure is described in detail in the README file on the CD.

If you want to install the miroVIDEO 22SD board under Windows 95 using the *Display Properties* dialog box, please read first the README file from the supplied CD-ROM.

To install the miro drivers and the miroWINTOOLS for Windows 95, proceed as follows:

1. If you have not done so already, start Windows 95.
2. Insert the miro CD-ROM into the CD-ROM drive.
3. In the task bar, select the *Start* menu and the *Run...* command.
4. Depending on the CD-ROM drive you use, enter:
   `d:\miro_win`<↵>, where **`d:\`** is the drive letter of your CD-ROM drive.
5. You are now in the *Language Selection* menu with the default setting *English*. The *Information...* button gives you information on the miroSETUP-Manager and its modules.

Exit/ Back The *Exit* button closes the miroSETUP-Manager, *Back* takes you to the previous window.

6. Click OK to go to the *miroSETUP-Manager Module Selection* window. Here you can select the *Drivers and Programs* item.

Information... The *Information...* button shows you all required instructions on the installation of the driver/program you selected.

Install... The *Install...* button starts the installation of the highlighted driver/program.

Diskette(s)... The *Diskette(s)...* button lets you create installation diskettes. If you want to install the miro CAD driver, you have to do this.

Microsoft DirectX

It is vital for the functionality of the miro drivers under Windows 95 that you installed the Microsoft **DirectX** driver. This contains all required software additions for the miro driver.

Before installing the graphics drivers for Windows 95, please install the Microsoft DirectX driver. For further information refer to the README file supplied on the CD.

7. Enable the *Microsoft DirectX* menu item. Follow the instructions that appear on the screen.
8. When Windows asks you to do so, restart the computer.
9. Restart the miroSETUP-Manager.
10. In the miroSETUP-Manager, select the *Start* menu and the *Run...* command.
11. Depending on the CD-ROM drive you use, enter:
    `d:\miro_win`<↵>, where **`d:\`** is the drive letter of your CD-ROM drive.
12. In the *miroSETUP-Manager Module Selection* window select the *Driver and Programs* item.

miro drivers for Windows 95

13. Enable the *miro drivers for Windows 95* and click *Install...* .
    The miro installation program is automatically started.

The miro installation program

At the beginning of the installation program the *Language Selection* menu appears where you can first select the language. The default language is the language from the installed Windows 95 version.

1. Click *Next* to confirm.
2. Now, in the *Select Components* dialog box, select the drivers and tools you want to install. Click on *Next* to copy the drivers and tools.
3. Click on *Finish*. The *Setup Completed* dialog box appears. Click again on *Finish*.

4. Now the *Display Properties* dialog box appears.
   Choose the *Preferences* page and the *Change Display Type* button. Here you can select the graphics adapter and monitor model.
5. Click on *Change...* next to the graphics adapter.
6. In the *Select model* window, choose *miroVIDEO 22SD* and click *OK* to confirm.

   Now, the drivers are being copied.
7. Choose a different monitor by clicking on *Change...* next to *Monitor*.
8. In the *Models* window, select your monitor. In the *Select model* window; select *Show all devices*, select your monitor and click *OK*.

An incorrect selection can cause serious damage to your monitor. In case of doubt, please consult the documentation that came with your monitor. Please also read the “Monitor selection” section, which you will find on page IV in the Appendix.

9. In the *Change Display Type* dialog box click *Close*.
10. Click *Apply* and answer *Yes* when being requested to restart the system.

miroWINTOOLS During the installation of the miro drivers the miroWINTOOLS will be copied to your hard disk and the miroWINTOOLS program group will be created. The miroWINTOOLS offer a detailed online help.

Deinstallation The miroWINTOOLS program group also offers an option which deinstalls the tools.

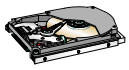
Further settings

After restarting Windows, go on to make the other settings (resolution, number of colors, etc.).

1. Open the *Display Properties* dialog box (click with the right mouse key on the Windows 95 desktop and the *Properties* menu item or the *Start* menu and *Settings*, *Control Panel*, *Display* and *Settings*).
2. In the *Settings* tab, change the desired settings (resolution, number of colors, ...).

   If you selected a high resolution, it is recommended to select *Large Fonts.*
3. Click *OK* to accept the settings.
4. If you want the settings to take effect immediately, restart the system when Windows 95 requests you to do so.

WINDOWS 95 DRIVERS (HARD DISK)



You can also install the miro installation program for Windows 95 in doing the following:

1. If you have not done so already, start Windows 95.
2. Create a directory on your hard disk.
3. Copy the CD-ROM contents into this directory.
4. To start the miro installation program, you have different possibilities:

- In the Windows 95 *Explorer* double-click the **SETUP.EXE** file in the directory you created.
- Select *Run...* in the *Start* menu and enter the drive, the directory and the **setup** command:

  e.g.: **c:\install\setup**.
- Select the *Start* menu and the *Run ...* command and click on *Browse...*, then change to the drive and the directory where you find the copied files and double-click the **SETUP.EXE** file.

The miro installation program is started automatically.

For a detailed description of the miro installation program and of further settings, refer to the “The miro installation program” and “Further settings” sections (page 10) in the “Windows 95 drivers (CD-ROM)” section (as of page 7).

Installing Windows 3.1x drivers

Before beginning the miro software installation, make sure Video for Windows has been installed. If this is not the case, the installation program will notify you.

INSTALLING VIDEO FOR WINDOWS

To install Video for Windows, proceed as follows:

1. If you have not done so already, start Windows.
2. Insert the miro CD-ROM into the CD-ROM drive.
3. In the Program Manager, select the *File* menu and the *Run...* command.
4. Depending on the CD-ROM drive you use, enter:
   `d:\miro_win`<↵>, where **`d:\`** is the drive letter of your CD-ROM drive.
   You are now in the *Language Selection* menu with the default setting *English*. The *Information...* button gives you information on the miroSETUP-Manager and its modules.
5. Click *OK* to go to the *miroSETUP-Manager Module Selection* window.
6. In the *miroSETUP-Manager Module Selection* window select the *Drivers and Programs* item.
7. Enable the *Video for Windows* menu item and click *Install.*

Follow the instructions of the installation program.

Video for Windows is now being copied to your hard disk and the corresponding program group is created.

WINDOWS 3.1X DRIVERS (CD-ROM)

Before installing the miro **drivers** for Windows 3.1x, your system has to be configured for **VGA**. On information of how to install your system for VGA, refer to your system´s documentation.

To install the miro drivers for Windows 3.1x and the miroWINTOOLS, proceed as follows:

1. If you have not done so already, start Windows.
2. Insert the miro CD-ROM into the CD-ROM drive.
3. In the Program Manager, select the *File* menu and the *Run...* command.

4. Depending on the CD-ROM drive you use, enter:
   `d:\miro_win`<↵>, where **`d:\`** is the drive letter of your CD-ROM drive.

   You are now in the *Language Selection* menu with the default setting *English*. The *Information...* button gives you information on the miroSETUP-Manager and its modules.
5. Click *OK* to go to the *miroSETUP-Manager Module Selection* window. Here you can select the *Drivers and Programs* item and view and print the *Documentation*.

Exit/ Back The *Exit* button closes the miroSETUP-Manager, *Back* takes you to the previous window.

6. In the *miroSETUP-Manager Module Selection* window select the *Drivers and Programs* item.
   Now you are in the *miroSETUP-Manager Drivers and Programs* window. Here you can choose which drivers and/or programs you want to install.

Information... The *Information...* button shows you all required instructions on the installation of the driver/program you selected.

Install... The *Install...* button starts the installation of the highlighted driver/program.

Diskette(s)... The *Diskette(s)...* button lets you create installation diskettes.

7. Enable the *Driver for Windows 3.1x* menu item and click *Install...* .
   The miro installation program is automatically started.

The miro installation program

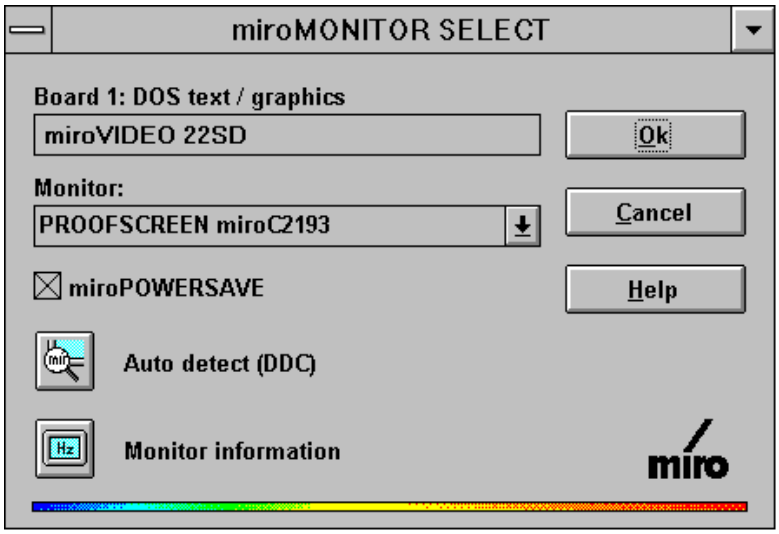
At the beginning of the installation program the *Language Selection* menu appears with the default setting *English*.

8. Click *Install*.
9. Select the components you want to install.

After the installation is complete, the miroMONITOR SELECT tool will be started you can use to select your monitor.

miroMONITOR SELECT (Windows)

The miroMONITOR SELECT window lets you select your monitor.



Board 1: DOS text/graphics

Here the installed graphics board is displayed.

Monitor:

miroVIDEO 22SD supports VESA **D**isplay **D**ata **C**hannel (DDC). If your monitor also supports the DDC specification, you will find your monitor in the *Monitor* list box during a first-time installation.

If this is not the case or if there is a wrong entry in the *Monitor* list box, proceed as follows:

- Open the *Monitor* list box and select your monitor. If your monitor is not named in the list, select the monitor with the next lower horizontal frequency.

An incorrect selection can seriously damage your monitor. If you are in doubt, refer to your monitor documentation.

miroPOWERSAVE:

miroVIDEO 22SD supports VESA DPMS Power Management. A monitor which also supports Power Management reduces its power consumption when it is not being used until it switches itself off.

- Enable the *miroPOWERSAVE* check box, if your monitor supports this tool.

Only use miroPOWERSAVE, if your monitor has a power saving function complying with the VESA specification!

Auto detect:

If you click this button and if your monitor supports the VESA DDC standard, miroVIDEO 22SD tries to detect the monitor connected to the board.

Monitor information:
If you click this button, you get a list with all resolutions and frequencies available.

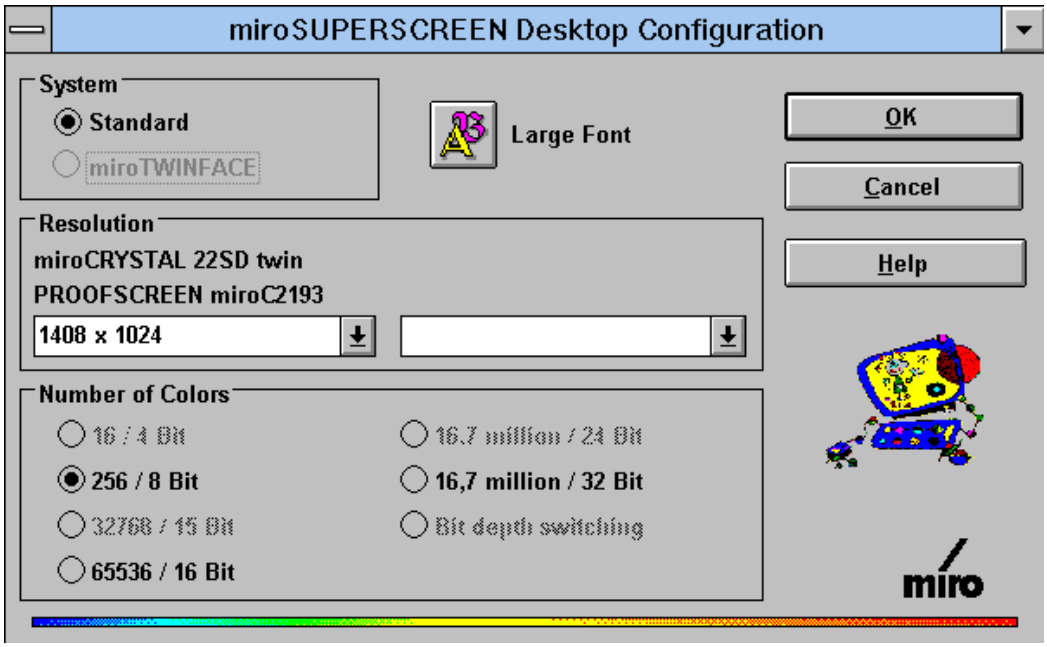
For detailed information on miroPOWERSAVE, refer to the online help.

- Click *OK*, to accept the settings.

The miroSUPERSCREEN tool starts automatically.

miroSUPERSCREEN

A detailed online help gives you detailed information on **all** miroSUPERSCREEN functions.



- The *Large Font* button lets you select large fonts. The *Large Font* setting is recommended if you use high resolutions.
- Select the correct resolution in the *Resolution* list box.
- Select the desired *Number of colors*. Color depths which cannot be selected are dimmed. If you enabled the *Bit depth switching* option, use the button in the miroPINBOARD.

  If you want to change the resolution and the number of colors, always select the resolution and then the number of colors.
- After you specified all resolutions, click *OK* to quit miroSUPERSCREEN and start Windows.

miroWINTOOLS

During the installation of the miro drivers the miroWINTOOLS have been copied to your hard disk and the program group has been created.

A detailed online help gives you more information on the miroWINTOOLS.

WINDOWS 3.1X DRIVERS (DISKETTE)

If you created installation disks for Windows 3.1x using the miroSETUP-Manager, you can install the installation from disk. On information on how to create installation disks, refer to “Overview: Software installation” section in the “Creating installation diskette(s)” as of page 5.

To install the miro drivers for Windows 3.1x, proceed as follows:

1. Start Windows.
2. Insert the first disk from the installation disk set into the disk drive.
3. In the Program Manager, select the *File* item and the *Run...* command.
4. Depending on the disk drive you use, enter:
   `a:install` or **`b:install`** and click *OK*.

The miro installation program is started automatically.

For a detailed description, refer to the “Windows 3.1x drivers (CD-ROM)” chapter in the “The miro installation program” section as of page 12.

Installing Windows NT drivers

WINDOWS NT 3.5X (DISKETTE)

The CD-ROM also includes drivers for Windows NT. These cannot be installed using the miroSETUP-Manager.

Create installation disks using the miroSETUP-Manager. On how to create installation disks, refer to “Creating installation disk(s)” in the “Overview: Software installation” section page 5.

For more details on the installation and configuration, refer to the README.TXT file on the CD-ROM in the WIN_NT directory.

To install the miro drivers for Windows NT,

1. Select *Control Panel* from the *Main Group* and double-click the *Display Tool*.
2. In the *Display Settings* window click *Change Display Type*.
3. Click the *Change...* button.
4. The *Select Device* window offers you an overview over all installed drivers that are already installed. Select *Other... .*

   You are now requested to insert another disk.
5. Insert the installation disk into the disk drive. Depending on the disk drive you use, enter **a:** or **b:** and click *OK*.
6. The *Select Device* window shows you the driver for your board at the end of the driver list.
7. Select the graphics board installed in your computer.
8. Confirm the following message.
9. If you had already installed the driver, you are asked whether you want to install the old or the new driver. Start the installation of a new driver by clicking the *New* button.
11. Click the *Continue* button to proceed with the installation.
12. Confirm the message telling you that the driver is only available after restarting the computer.
13. Also confirm the question requesting you to restart Windows NT.

After the restart the driver which has just been installed is active with the lowest resolution. You can use the miroMONITOR SELECT tool to select a monitor (page 18) and then select a resolution (page 19).

WINDOWS NT 4.0

The miro drivers for Windows NT 4.0 cannot be installed with the miroSETUP-Manager.

For more details on the installation and configuration, refer to the README.TXT file on the CD-ROM in the WINNT40 directory.

For a successful installation of the drivers it is vital that Windows NT 4.0 has been installed on your computer with a Standard VGA driver.

If this is not the case, install Windows NT 4.0 in the VGA mode after the hardware installation. After restarting the system, install the miro drivers.

Proceed as follows:

1. Click the *My Computer* icon to open the *My Computer* window to start the *Control Panel* program.
2. Start the *Display* tool to adjust/select the video display and switch to the *Settings* section.
3. In the *Display Properties* window, select the *Change Display Type* button.
4. The *Display Type* window offers an overview of the currently active display driver. Please activate the *Change...* button.
5. The *Select Device* window offers you an overview of all display drivers supplied with your Windows NT 4.0 Installation. Please select the *Have Disk...* button.
6. In the *Install from Disk* window overwrite the default setting with **d:\disksets\winnt40**, where **d:** is the letter of your disk drive containing your installation software. You can search your drivers by using the *Browse* button. Only files with the file name extension **.inf** are displayed. The file you have to look for is named **mirosing.inf**.
7. After selecting the proper file you choose the installed graphics board from the *Change Display* window. Select your board and press *OK* or double-click the appropriate entry in the list.
8. Select *YES* in the *Third-party Drivers* message box. The driver files are now being copied to your hard disk.
9. Close the *Display Type* and the *Display Properties* windows and reboot the computer.

After the restart the driver which has just been installed is active with the lowest resolution. You can now select a monitor and change the resolution.

miro MONITOR SELECT - CONTROL PANEL EXTENSION

Proceed as follows:

1. By using the *Icon My Computer*, you can start the *Control Panel* program.
2. To select a monitor, start the *miro Monitor Select* tool.
   The title is the name of your graphics board.
3. Select your monitor from the *Monitor* list. If your monitor is not listed, select the monitor from the *Multi Frequency* monitors with the frequency which comes close to the frequency of your monitor.
4. Only Windows NT 3.5: After a short while you see the *Available Resolutions* list which gives you an overview of all resolutions supported by your monitor and the horizontal and vertical refresh rates. Please make sure that you do not select a horizontal scan frequency which is higher than the horizontal scan frequency of your monitor.
5. To confirm your selection, click *OK* or click *Cancel* to keep the selected monitor.
6. In the *Monitor Settings Change* window you can restart the system immediately clicking *Restart Now*. You can also click the *Don't Restart Now* button to get back to the *Control Panel* program.
7. Restart the system using the task bar.
8. After the restart the selected monitor is active. If the resolutions and refresh rates differ from the settings of the previous monitor, the system will notify you.

PLEASE NOTE: The *miro Monitor Select* icon is only available in the *Control Panel* program, if a driver installed from this disk is currently active.

CHANGING THE RESOLUTION

To change the resolution, proceed as follows:

1. By using the *My Compute*r icon, you can start the *Control Panel* program.
2. Start the *Display* tool to select/change the video display. Change to *Settings*.
3. The *List All Modes* button lists the resolutions your board and your monitor support and the number of colors and frequencies. Double-click to select a resolution.
4. You can also use the *Desktop area* slider, the *Color Palette* and the *Refresh Frequency* windows to select a resolution. Keep in mind that the settings are interdependent. If you select an invalid setting, the other options change so that a valid setting is restored.

5. To check the selected resolution in a testscreen, click the *Test* button and confirm.
   - Is the selected resolution/frequency displayed on the monitor?
   - Is the correct resolution specified?
   - Are the arrows in the testscreen margins visible?
   - Are the colored and the hatched areas displayed correctly?

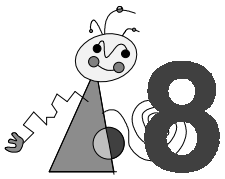
   After five seconds the testscreen disappears and you see the workspace again.
6. If the resolution on the testscreen is OK, confirm the Testing Mode window with *Yes*.

Windows NT 3.5x

7. Restart the system.

Windows NT 4.0

7. The new graphics mode will be displayed immediately.



Installing the OS/2 drivers

The CD-ROM also includes OS/2 drivers. These drivers are not installed using the miroSETUP-Manager.

OS/2 DRIVERS (CD-ROM)

- To install the miro drivers for OS/2,
- enter the following command under OS/2
  `d:\disksets\os2\miroinst.cmd d:\disksets\os2\ c:`<↵>,
  where **`d:\`** is the drive letter of your CD-ROM drive, **`c:\`** the drive letter of your OS/2 drive.

For more details on the installation and configuration, refer to the README.TXT file on the CD-ROM in the OS2 directory.

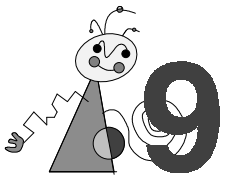
OS/2 DRIVERS (DISKETTE)

If you used the miroSETUP-Manager to create installation disks for OS/2, you can start the installation from disk. On how to create installation disks, refer to “Creating installation disk(s)” in the “Overview: Software installation” section as of page 5.

To install the miro drivers for OS/2, proceed as follows:

- under OS/2 enter
  `a:\miroinst.cmd a: c:`<↵>, where **`a:\`** is the drive letter of your disk drive and **`c:\`** the drive letter for the OS/2 hard disk.

For detailed information on the installation and configuration, refer to the README.ENG file on the CD-ROM located in the OS2 directory.



Installing CAD drivers

CAD DRIVERS FOR WINDOWS 95 (CD-ROM)

To install the miro drivers for CAD for Windows 95, proceed as described in the “Installing Windows 95 drivers” section under “Windows 95 drivers (CD-ROM)” in steps 1. to 6. on page 7.

7. In the *Module Selection* miroSETUP-Manager window select the *Drivers for CAD menu* item (Windows 95) and click *Install...* .

   The miro installation program is started.
8. Select the CAD driver(s) you want to install and click *OK*.
9. Enter the drive and the directory to which you want to copy the files and click *OK*.

For a detailed description of the miro installation program and of further settings, refer to the “The miro installation program” (page 10).

CAD DRIVERS FOR WINDOWS 95 (HARD DISK)

You can also start the miro installation program in the following way.

1. If you have not done so, start Windows 95.
2. Create a directory on your hard disk.
3. Copy the disk contents to this directory.
4. To start the miro installation, you can do either of the following steps:
   - Double-click the **`INSTALL.EXE`** file in the Windows 95 *Explorer* in the directory you created.
   - Select the *Run...* command from the *Start* menu and enter the **`install`** command:

     e.g.: **`c:\install\install`**.
   - In the *Start* menu click *Run...* and click *Browse...*, then change to the drive and to the directory containing the copied files and double-click the **`Install.EXE`** files.

   The miro installation program starts automatically.
5. Select the CAD driver(s) you want to install and click *OK*.
6. Enter the drive and the directory to which you want to copy the files and click *OK*.

   The miroCAD drivers will be copied to the selected hard disk and to the selected directory. Now the installation is complete.

For a detailed description of the miro installation program and of further settings, refer to the “The miro installation program” and “Further settings” sections (page 10) in the “Windows 95 drivers (CD-ROM)” section (as of page 7).

CAD DRIVERS FOR WINDOWS 3.1X (CD-ROM)

To install the miro drivers for CAD for Windows 95, proceed as described in the “Installing the Windows 3.1x drivers” under the “Windows 3.1x drivers (CD-ROM)” in steps 1. to 6. on page 17.

7. In the *Module Selection* miroSETUP-Manager window select the *Drivers for CAD menu* item (Windows 3.1x) and click *Install...* .

   The miro installation program is started.
8. Select the CAD driver(s) you want to install and click *OK*.
9. Enter the drive and the directory to which you want to copy the files and click *OK*.

   The miroCAD drivers will be copied to the selected hard disk and to the selected directory. Now the installation is complete.

For a detailed description, refer to the “Windows 3.1x drivers (CD-ROM)” chapter in the “The miro installation program” section as of page 12.

CAD DRIVERS FOR WINDOWS 3.1X (DISKETTE)

If you created installation disks for Windows 3.1x using the miroSETUP-Manager, you can start the installation from disk. On information on how to create installation disks, refer to “Overview: Software installation” section in the “Creating installation diskette(s)” as of page 5.

To install the miro CAD drivers for Windows 3.1x, proceed in the following way.

1. If you have not done so already, start Windows 3.1x.
2. Insert the installation disk set into the disk drive.
3. In the Program Manager, select the *File* item and the *Run...* command.
4. Depending on the disk drive you use, enter:
   `a:install` or **`b:install`** and click *OK*.
5. Select the CAD driver(s) you want to install and click *OK*.
6. Enter the drive and the directory to which you want to copy the files and click *OK*.

   The miroCAD drivers will be copied to the selected hard disk and to the selected directory. Now the installation is complete.

For a detailed description, refer to the “Windows 3.1x drivers (CD-ROM)” chapter in the “The miro installation program” section as of page 12.

CAD DRIVERS FOR WINDOWS NT (CD-ROM)

Installing WinG

To use miroGTI 13 Win for Windows NT, please first install the Windows extension WinG from the miro CD. WinG is located in the \WinG directory and is installed by entering **`Setup`**.

Windows NT 3.5x

To install the miro CAD drivers for Windows NT, proceed as described in the "Installing Windows 3.1x drivers" section under "Windows 3.1 (CD-ROM)" in steps 1. to 6. on page 17.

Windows NT 4.0

To install the miro CAD drivers for Windows NT 4.0, proceed as described in the "Installing Windows 95 drivers" section under "Windows 95 drivers (CD-ROM)" in steps 1. to 6. on page 17.

Windows NT 3.5x / Windows NT 4.0

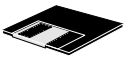
7. In the *Module Selection* miroSETUP-Manager window select the *Drivers for CAD menu* item (Windows 3.1x) and click *Install...* .

   The miro installation program is started.
8. Select the CAD driver(s) you want to install and click *OK*.
9. Enter the drive and the directory to which you want to copy the files and click *OK*.

The miroCAD drivers will be copied to the selected hard disk and to the selected directory. Now the installation is complete.

For a detailed description, refer to the "Windows 3.1x drivers (CD-ROM)" chapter in the "The miro installation program" section as of page 12.

CAD DRIVERS FOR WINDOWS NT (DISKETTE)



If you created installation disks for Windows NT using the miroSETUP-Manager, you can start the installation from disk. On how to create installation disks, refer to the "Software installation" section under "Creating installation disk(s)" as of page 5.

To install the miro CAD drivers for Windows NT, proceed as follows:

1. If you have not done so already, start Windows NT.
2. Insert the disk into the disk drive.
3. In the Program Manager select *File* and the *Run...* command.
4. Depending on which disk drive you use, enter **`a:\install`** or **`b:\install`** and click *OK*.

   The miro installation program is started automatically.
5. Select the CAD driver(s) you want to install and click *OK*.
6. Enter the drive and the directory to which you want to copy the files and click *OK*.

The miroCAD drivers will be copied to the selected hard disk and to the selected directory. Now the installation is complete.

For a detailed description, refer to the "Windows 3.1x drivers (CD-ROM)" chapter in the "The miro installation program" section as of page 12.

CAD FOR DOS (DISKETTE)

The miro drivers for CAD under **DOS** are installed under **DOS** from diskette. Create installation disks using the miroSETUP-Manager. On how to create installation disks, refer to “Creating installation disk(s)” in the “Overview: Software installation” section page 5.

1. If you have not done so already, use the *miroSETUP-Manager Drivers and Programs* and the *Disk(s)...* button to create a 3,5" installation disks.
2. Close the miroSETUP-Manager and quit Windows.
3. Insert the installation disk in the disk drive.
4. Depending on the disk drive you use, enter **`a:\install`**<↵> or **`b:\install`**<↵>.

   The installation program is called.

The miro installation program

At the beginning of the installation program the *Language Selection* menu appears with the default setting *English*.

Click the enter key to go to the main menu.

The installation program is operated via the keyboard. The bottom line shows the keys to operate the installation program.

To mark a menu item, move the cursor bar to the menu item using the arrow keys and press the space key. To perform the action, press <↵>. Presettings (YES/NO) can be changed using the space key.

1. Select the desired drivers for your applications (e.g. AutoCAD 9 - 10); change the presettings from *NO* to *YES* using the space key.

The *only system software* option installs the system files for your miro graphics board.

The *only uninstall all software* option deletes all files copied to the hard disk during a previous installation.

Do not forget to set the presettings of the desired miro drivers from *NO* to *YES*. To install the desired drivers, press the enter key after you have changed the presettings of all selected drivers.

2. Accept or overwrite the default settings for the drive and directory.

By default, the system software is copied to the system directory of your miro graphics board, the miro application drivers are copied to the drive of the applications.

The installation program modifies the AUTOEXEC.BAT file. The original version is saved under AUTOEXEC.BAK.

After installing the system software and the drivers, miroMONITOR SELECT is started.

miroMONITOR SELECT (CAD)

The miroMONITOR SELECT tool allows to select your monitor.

Selecting elements/list boxes/buttons:

<Alt>+<Letter>	Selects a list box/a command.
<Tab>	Selects the next list box/element/control button.
<Shift>+<Tab>	Selects the previous list box/element/control button.
<Alt>+<Arrow up>	Opens a list box.
<Alt>+<Arrow down>	Closes a list box.
<Alt>+<Space>	Activates the system control menu.

Selecting in list boxes:

<Arrow up/down>	Selects next/previous entry .
<Enter>	Accepts an entry.

Selecting/activating/deactivating control buttons:

<Arrow up/down> <Arrow left/right>	Selects control buttons one after the other.
<Space>	Activates/deactivates an element.

Performing actions:

<Enter>	Performs an action.
<Esc>	Aborts an action.
<Alt>+<F4>	Quits miroMONITOR SELECT.

You can operate the miroMONITOR SELECT either using the mouse or the keyboard. If no mouse is installed, please refer to table.

1. Check, if you have selected the correct board in the installation program. If this is not the case, start the installation program again.
2. Open the *Monitor type* list box and select your monitor. If your monitor is not in the list, select the monitor with the next smaller horizontal scan frequency.

An incorrect selection can seriously damage your monitor. If you are in doubt, refer to your monitor documentation.

The *Info* button gives you a list of all resolutions and frequencies.

3. Accept the settings by clicking *OK*, to end the installation of the miro graphics board.

After quitting miroMONITOR SELECT, an information screen appears.

The information is the same as the README file which has been copied to the system directory of your miro graphics board. The file can always be called from this directory by entering **`readme`** <↵>.

Now the installation is completed.

miroGTI 12

Overview

miroGTI 12 is a display and rendering drivers which store the picture sent by AutoCAD in a displaylist. miroGTI 12 is compatible with the Autodesk Device Interface (ADI) 4.2 including the Advanced Modeling Extension (AME) and the Advanced Visualization Extension Render (AVE). miroGTI 12 supports **AutoCAD 11/12/13**. The drivers run in the Protected Mode of the 80386/80486 processors, offering maximum speed.
A variety of enhanced features contributes to even more user-friendliness:

- 32-bit support in the displaylist*,
- menu-driven driver configuration*,
- Color Manipulation Tool,
- font selection, hotkey configuration, miroTEXTSCREEN (configurable)*,
- screensaver,
- miroSPOTVIEW (magnifying glass),
- FASTZOOM,
- possibility to set the display and rendering resolution*.

Configuring AutoCAD for miroGTI 12

Before using miroGTI 12 with your AutoCAD program, you have to reconfigure AutoCAD in a way that the application uses the driver.

1. Start AutoCAD with the **-r** parameter (only for the initial configuration).
2. In the configuration menu select the item for the video configuration.
3. In the video configuration menu select the miroGTI 12 driver.
4. Answer AutoCAD's default questions concerning the driver configuration.

If you want to configure your digitizing tablet under AutoCAD, turn off the *Zoom* and the *Pan* menu.

After the configuration the AutoCAD screen menu appears. The menu is complemented by some additional miroGTI 12 functions. Among others the miroGTI 12 main menu can be called up there (not for AutoCAD 11) giving you access to all driver features. miroGTI 12, installed with a default configuration, can be configured individually to your liking. AutoCAD 11 is configured after the video configuration in the miroGTI 12 dialog.

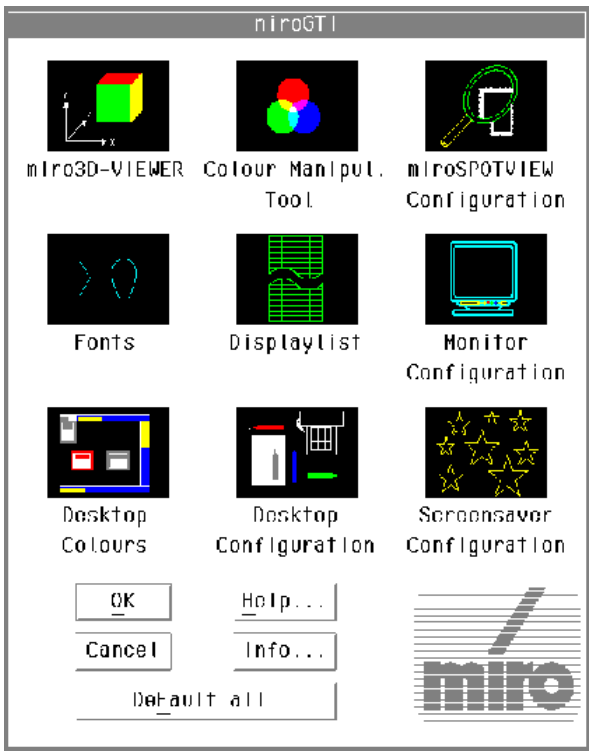
* Not available for AutoCAD 11

miroGTI 12 main menu

Calling the main menu

You can call the driver's main menu in different ways:

- by clicking *miroGTI* in the AutoCAD/miroGTI 12 screen menu,
- by simultaneously pressing the <CTRL> and <L> keys,
- by typing the commands **ami_gti, ami_local** or **ami_menu.**



The miroGTI 12 main menu allows to

- call the miro tool miro3D-VIEWER,
- call the Color Manipulation Tool,
- configure the driver as you desire.

The miroGTI 12 is configured with the help of dialog boxes. Concerning the design and functionality these boxes correspond to the AutoCAD dialog boxes. Each dialog box offers a context-sensitive help feature, displaying the information you need on the screen.

The settings done in the miroGTI 12 main menu take effect without system restart.

Help

Each dialog box has a help button. When clicking this button a help window appears describing the elements of a dialog box.

The changes made during the configuration will take effect without having to restart AutoCAD.

Not all miro graphics boards and system configurations can use the complete miroGTI 12 function range. The functions which are not available are dimmed and cannot be selected.

Default configuration

The *Default all* button resets the values to the defaults.

These are:

Displaylist:	activated
Number of monitors in the single-screen configuration:	one
Number of monitors in the multi/dual-screen configuration:	two
Birdeye:	deactivated
Color scheme emulation:	deactivated
Scroll area:	one line
Zoom and Pan in side menu:	activated
Hotkeys:	activated (default configuration)
Dynamic Pan:	deactivated
Rendering Resolution:	*As Resolution*

In case you want to replace miroGTI 12 by a newer driver version, this has to be configured again.

Using miroGTI 12

Overview

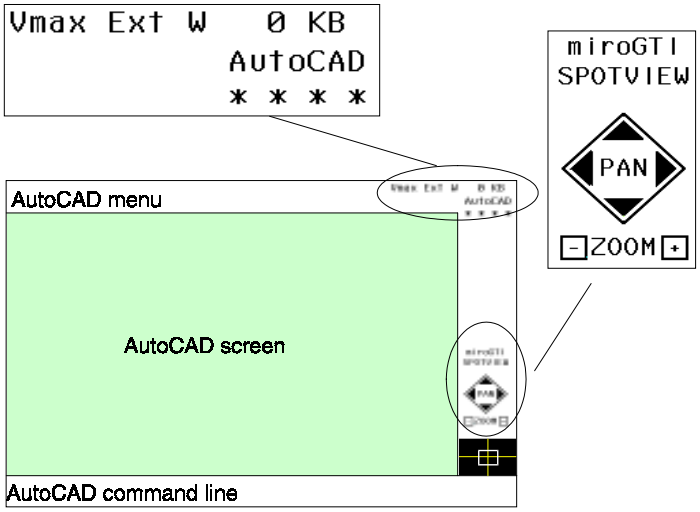
The miroGTI 12 driver offers additional functions increasing the efficiency when working with AutoCAD:

- miroSPOTVIEW is a function which enlarges the area where the cursor is located in a split second and avoids having to perform a time-consuming zoom;
- FASTZOOM allows you to edit zoomed drawing details;
- miroQUICKVIEW: due to the implementation of two display buffers (Double Buffering) miroQUICKVIEW makes absolutely flicker-free zooming and panning possible.

In addition to the functions mentioned above, miroGTI 12 offers an accelerated delete mode. All deleted vectors are marked in the displaylist as deleted, the driver automatically searches through the displaylist looking for deleted vectors and decreases it in size. The memory which is now no longer occupied is released. Thus, the displaylist remains relatively compact and occupies less memory. Deleted elements no longer flash during regens.

AutoCAD/ miroGTI 12 screen menu

After you have started the program the AutoCAD screen you are used to will have some additional functions.



The menu items miroGTI 12 offers allow you to control the program and to check its status. In addition to the current color you can check the displaylist size as well as the size and position of the current detail on the screen.

Status check

Displaylist size indicator

In the upper right-hand corner of the screen you see the *displaylist size indicator* which tells you how much amount of memory is occupied by the displaylist.

Display of the current detail

In the bottom part of the screen you will see either the miro logo or the size and position of the current detail. In this case a white frame states the greatest expansion of the current display list. A crosshair shows the middle, a white rectangle the size of the current viewport.

The miro logo is shown instead of the current detail if the displaylist ZOOM factor equals 1. The same holds true when you are dealing with a so-called non-zoomable viewport. This special marker is only assigned by AutoCAD 11/12/13, for example for presentations in perspective.

Function control

Vmax

The zoom command *Vmax* corresponds to the AutoCAD command **Zoom Vmax** (Zoom to Virtual Screen Maximum).

This command lets you zoom out as far as possible on the current viewport's virtual screen without regenerating your drawing completely.

Ext

The zoom command Ext corresponds to the AutoCAD command **Zoom Extents**. In opposition to the *Vmax* command which displays the whole drawing area even if only a small portion of it has any entities the command *Ext* uses only the drawing extents and not the limits. In this way, the largest possible section including all entities can be displayed on the screen.

A 10-pixel-wide edge will remain between the drawing and the window frame.

The feature miroQUICKVIEW (Double-Buffering/ management of two display buffers) enables a **Zoom Extents** redraw in zero seconds without

flicker. This redraw without any delay is possible if the image is stored in the second display buffer, that is the first zoom operation is carried out at a normal speed.

W

The zoom command *W* is analog to the AutoCAD command **Zoom Window**. You can specify the area you want to be displayed enlarged in a bird's eye window.

After activating the command, you will see a birdeye window in the upper right half of the screen (when entering the command as the text command **ami_zoomw** the bird's eye window appears where the cursor is). Move the cursor to the desired position on the drawing. Mark a corner point of the window by pressing the pick button; instead of the crosshair cursor you will now see a zoom box. The size of the zoom box is modified by moving out of the center of the box. Draw the zoom box so that it has the desired size and mark the second corner point by clicking the pick button again: you will see the zoom area in the specified size. You can abort the zoom function with the key combination <CTRL> and <L>.

In the Birdeye windows the four zoom details selected last are saved and marked with a white frame. If you want to activate a detail selected before again, click with the right mouse key into the corresponding white frame and this detail is shown.

You can also activate the **ami_zoomw** command by clicking onto the miro **logo in the** *AutoCAD/miroGTI screen menu*.

If the cursor is located in the status line of the *AutoCAD/miroGTI 12 screen menu*, you cannot enter AutoCAD commands.

miroGTI

By clicking this menu item you switch to the *main menu*.

Pan

When you point the cursor to the arrow symbols and press the pick button the detail is moved 1/3 in the direction of the arrow.

Zoom-

When you point the cursor to the **(-)** symbol and press the *pick* button, the driver goes to the next lower zoom level. To get the new zoom factor, the old zoom factor is multiplied by 0.7. The reference point for decreasing is the center of the drawing.

Zoom+

When you point the cursor to the **(+)** symbol and press the pick button, the driver goes to the next higher zoom level. To get the new zoom factor, the old zoom factor is multiplied by 1.4. The reference point for increasing is the center of the drawing.

miroGTI 12 commands

There are different ways to control miroGTI 12: selecting the commands directly from the AutoCAD/miroGTI 12 screen menu, using the hotkeys, or entering the commands over the keyboard. The following table lists the keyboard commands.

Keyboard commands

The functions marked with (*) can be used with AutoLISP programs.

Put an apostrophy in front of some miroGTI 12 functions to use them in the so-called transparent mode. That is they can be used even if another AutoCAD command is in progress.

The following table lists the keyboard commands and their equivalents:

Keyboard command	Equivalent to ...	Description
ami_clean oder ami_clean_list	-	Displaylist is compressed
ami_gti or ami_local ami_menu (*)	<CTRL> + <L> keys AutoCAD side menu: miroGTI	Opens miroGTI 12/13 main menu
ami_down; ami_up; ami_right; ami_left	AutoCAD-Screen menu: PAN	Pan down; Pan up; Pan to the right; Pan to the left
ami_in	ZOOM+ in AutoCAD side menu	Zoom with next higher zoom level around the drawing's center
ami_out	ZOOM- in AutoCAD side menu	Zoom with next lower zoom level around the drawing's center
ami_draw (*)	AutoCAD: 'REDRAW	Regeneration of the screen (only current viewport)
ami_zoom<factor>	AutoCAD: 'ZOOM number	Zoom with certain zoomfactor; examples: ami_zoom1, ami_zoom3, ami_zoom15
ami_zoomext	AutoCAD: 'ZOOM extents; AutoCAD status line: Ext	Zoom onto the drawing extents (without REGEN)
ami_zoomvmax	AutoCAD: 'ZOOM Vmax AutoCAD status line: Vmax	Zoom into the virtual screen (only current viewport; without REGEN)
ami_zoomw	AutoCAD: 'ZOOM window; AutoCAD status line: W	Area of the drawing to be zoomed (overview at cursor position) is specified
ami_spoton (*)	-	Starting miroSPOTVIEW
ami_spotoff (*)	-	Quitting miroSPOTVIEW
ami_birdclean (*)	-	Redraw on second monitor (miroMULTIVIEW)
ami_panon (*)	miroGTI 12/13 main menu/ Desktop Configuration Dynamic Pan	Activating Dynamic Pan
ami_panoff (*)	miroGTI 12/13 main menu/ Desktop Configuration Dynamic Pan	Deactivating Dynamic Pan
ami_fastzoom (*)	<CTRL> +<F1>	Switching FASTZOOM on/off
ami_miro3d	miroGTI 12/13 main menu/ miro3D-VIEWER	Switches miro3D-VIEWER on (optional)
ami_hoton	miroGTI 12/13 main menu/ Desktop Configuration Hotkey	Switches on hotkeys
ami_hotoff	miroGTI 12/13 main menu/ Desktop Configuration Hotkey	Switches off hotkeys

miroSPOTVIEW

miroSPOTVIEW allows to enlarge a part of a drawing without having to call the ZOOM command. After starting miroSPOTVIEW the miroSPOTVIEW window (a dialog box with a crosshair) appears at the position specified during the configuration. In addition to the position, the window size and the zoom factor to be used for enlarging a part of a drawing can be specified via the miroGTI 12 main menu.

Turning on/off

You can turn miroSPOTVIEW on/off in three different ways (using the <F2> key is only possible when it has been enabled during the configuration):

- use the AutoCAD/miroGTI 12 screen menu
- use the defined hotkey (default <F2>)

- use the **ami_spoton** (on) or **ami_spotoff** (off) keyboard commands.

If *FASTZOOM* is enabled, you cannot call up miroSPOTVIEW via the AutoCAD/miroGTI 12 screen menu, instead press the hotkey.

Moving miroSPOTVIEW

To move the miroSPOTVIEW window, click the title bar of the miroSPOTVIEW window with your pointing device and while holding the pick button down move it towards the part of the drawing to zoom. Each time AutoCAD loads the miroSPOTVIEW window will appear at the default position specified during the configuration.

Changing the zoom factor

When the cursor is located in the miroSPOTVIEW window, you can use the following keys:

<F3> key	Zoom factor decreases: to get the new zoom factor the old zoom factor is multiplied by 0.7
<F4> key	Zoom factor increases: to get the new zoom factor the old zoom factor is multiplied by 1.4

Be sure to distinguish between the relative Zoom (the zoom factor is dependent on the current viewport) and the absolute Zoom (the zoom factor is dependent on view of the whole drawing = *Vmax*). When zooming within the miroSPOTVIEW window the zoom factor always depends on the current viewport.

If you make the miroSPOTVIEW window bigger than the default size it has when starting AutoCAD, the zoom factor of the relative zoom appears to the right of the windows title (from 1.x to 100).

Selecting/ pasting/deleting

miroSPOTVIEW is not active for a short while selecting, pasting, and deleting objects.

FASTZOOM

With FASTZOOM you can work on a small segment of your drawing and still use all AutoCAD functions.

You need a three-button device (e.g. a mouse) to use FASTZOOM, because the middle button activates FASTZOOM.

1. Activate FASTZOOM by pressing <CTRL> and <F1>.

This combination has a toggle function, that is you can turn FASTZOOM on and off. When FASTZOOM is on, the SPOTVIEW display in the *AutoCAD/miroGTI screen menu* changes to FASTZOOM.

2. Move the cursor to the middle of the segment you want to maximize.
3. Press the middle mouse button once to determine the center of the segment you want to maximize.
4. Now, use the mouse to open the square until the area is marked (the square will be shown as an *AutoCAD box* with crossing lines).
5. Click the left mouse button once to confirm your selection.

Now you can make the changes; all AutoCAD functions are available.

6. After you have made all your changes, return to the original position by clicking the center button a second time.

FASTZOOM remains on until you press **<CTRL>** and **<F1>** again.

miroQUICKVIEW

miroQUICKVIEW makes panning and zooming possible without any flicker. The prerequisite for miroQUICKVIEW is the so-called Double Buffering feature, which means that the video memory consists of two display buffers. The current drawing is stored in both buffers, thus existing in duplicate. During zooming and panning in the buffer which is currently not active (not visible) the next image is redrawn. miroQUICKVIEW switches between both buffers practically without any delay. Thus, zooming and panning is performed without any flicker. To use the functions of miroQUICKVIEW, the function keys (hotkeys) have to have been activated during the configuration.

Zooming with miroQUICKVIEW

The miroQUICKVIEW zoom is operated using the function keys **<F3>** and **<F4>**. By pressing **<F3>** and moving the mouse you can zoom out of the drawing and no flicker occurs. By pressing **<F4>** and moving the mouse, you can zoom into the drawing. The miroQUICKVIEW zoom is turned off by pressing the keys **<F3>** or **<F4>** or by clicking the mouse.

Panning with miroQUICKVIEW

To pan with miroQUICKVIEW, the real time pan function (Dynamic pan) must be enabled. Move the crosshair cursor to the sensitive marginal area of the viewport. After you are in this sensitive area for nearly one second the crosshair cursor becomes a compass cursor for a short while. The compass cursor tells you that you can now start to pan by pressing the pick button or by moving out of the sensitive area. If the cursor position is on the right edge, the drawing is moved to the left. If the cursor position is on the upper edge, the drawing will move down etc. After one second the compass cursor becomes a crosshair cursor again, and you can work in the sensitive area as usual. If you want to abort panning, press the pick button. If you want to pan once more, first move the cursor out of the sensitive area, then into it, and proceed as is described.

miroGTI 13 Win

Overview

miroGTI 13 Win is a powerful display and rendering driver compatible with the **A**utodesk **D**evice **I**nterface (ADI) 4.2. miroGTI 13 Win operates as a displaylist driver that stores the picture sent by AutoCAD in a displaylist. miroGTI 13 Win supports AutoCAD 13, miroGTI 13 Win supports AutoCAD 13. miroGTI 13 Win runs in the Protected Mode of the 80386/80486 processors, offering maximum speed. Some enhanced features contributes to even more user-friendliness:

- 32-bit support in the displaylist
- miroBIRDEYE
- miroSPOTVIEW

miroGTI 13 Win adds more speed to working with AutoCAD for Windows by using 32 Bit code for all drawing operations, regens etc. Windows processes displays menus, dialog boxes etc. with 16 bit. This provides miroGTI 13 Win a PC with Workstation processing speed.

miroGTI 13 Win supports AutoCAD 13 for Windows, including the **A**dvanced **M**odelling **E**xtension (AME) and **A**dvanced **V**isualization **E**xtension Render (AVE).

System requirements

To take full advantage of all features the miroGTI 13 Win has to offer, you need a 386/486 computer with at least 8 MB RAM. We recommend 16 MB RAM or more. You have to install Windows 3.1 and the Windows 3.1 drivers delivered by miro.

Special features

Here an overview of the features of miroGTI 13 Win:

32-bit support
The miroGTI 13 Win displaylist use 32-bit entries to perform zoom operation with factors up to 1.5 million without regenerating the drawing.

miroBIRDEYE
miroBIRDEYE is a powerful tool for users to zoom a drawing or to enlarge details. It makes it easier to keep a clear overview of large drawings with easy panning for any viewport.

miroSPOTVIEW
miroSPOTVIEW is a kind of magnifying glass. Due to miroSPOTVIEW the part of a drawing where the cursor is located can be enlarged in a split second.

Configuring AutoCAD and miroGTI 13 Win

Before using miroGTI 13 Win with your AutoCAD program, you have to reconfigure AutoCAD to recognize the driver. Proceed as follows:

1. Start Windows.
2. Start AutoCAD**.** Now you see the Drawing Editor.
3. From the *FILE* menu select *configure.*
4. Switch to the *configuration* menu and select from the video displays *miroGTI 13 Win.*

The miroGTI 13 Win tool bar appears.

For a detailed description of all miroGTI 13 Win functions refer to the online help.

miroADI

Introduction: miroADI

miroADI is a powerful Real Mode driver. You can use this driver with a multitude of Autodesk applications and take advantage of the functions of conventional ADI drivers on your miro graphics system. miroADI is compatible with Autodesk Device Interface (ADI) version 4.1 and higher.

miroADI supports:

- AutoCAD 9
- AutoCAD 10
- AutoShade 2.0
- AutoSketch 3.0

The miroADI driver on the installation disk which came with your miro graphics system is named **OCTOADI.EXE**.

Loading and configuring miroADI

1. **Loading miroADI.**

To call the driver enter: **octoadi**<↵>.
The default configuration set by miro is the interrupt vector 07A (hex), the background color black, the font size 8 x 16 and the resolution 1024 x 768 pixels.

2. **Configuring miroADI**.

To select other settings than the default settings, call miroADI with the following parameters:

Interrupt

To use another interrupt, e.g. 7Bh, call the driver in the following way: **octoadi /v7B**<↵>. The interrupts from 7Ah to 0d7h are available.

Background color

If you want to choose another background color, e. g. yellow, call the driver entering: **octoadi /b02**<↵>
The AutoCAD background colors 00h - 07FFh are available.

Number (hex)	00	01	02	03	04	05	06	07
Color	Black	Red	Yellow	Green	Cyan	Blue	Magenta	White

Font size

The parameter **/f** and a number between 0 and 2 specify which of the three available fonts are selected. **0** selects the 8 x 8, **1** the 8 x 16 and **2** the 12 x 24 font size.

Resolution

The parameter **/r** and a number between 0 and 2 specify which of the three available resolutions are selected. **0** selects the 800 x 600, **1** the 1024 x 768 and **2** the 1280 x 1024 resolution.

When entering **octoadi /?** the syntax is displayed.

After you have configured the driver, you may have to reconfigure your Autodesk application which has already been configured–especially if the display driver and/or the interrupt vector were changed.

Proceed as follows:

1. If you work with AutoCAD 9/10, switch to the configuration menu.
2. Select the item *Configure video display*. Select *ADI display v4.1*. Answer the questions.

After you have completed the configuration, you can use your Autodesk program together with your miro graphics system.

Removing miroADI

miroADI is a so-called TSR (= **T**erminate and **S**tay **R**esident) program. That is, it can be removed from the memory of the computer after you have finished working with your Autodesk application.

- **Remove miroADI from the memory after quitting your application**. Switch to the directory containing the system software of your graphics board and enter:
  rmadi<↵>

Functions

The function range of miroADI is the same as of a standard ADI driver, so that you don't have to get used to new functions.

The high speed of miroADI is due to the Fast Draw mode. In addition, miroADI takes full advantage of the Packet Mode Interface.

MICROSTATION PC

Overview

The disks supplied with your miro graphics board include driver software for **MicroStation PC version 4.0** and **version 5.0**. The **Protected Mode** driver allows to use the miro graphics board features when using MicroStation, for example:

- maximum resolutions of 1600 x 1280 pixels (depending on the board),
- ergonomics: the high refresh rates and the non-interlaced mode prevent eye-strain,
- single-screen configuration: two screen sides are supported.

During the installation the driver files are copied to the C:\USTATION\DRIVERS subdirectory. The MIROMODE.EXE program (for the miroVIDEO boards: MIROMAT.EXE) is copied to the miro graphics board system file.

Configuring MicroStation

After having installed the drivers on your hard disk, configure MicroStation for your graphics board using the USCONFIG.EXE program. This program is part of the MicroStation software and is usually located in the - C:\USTATION directory. For general information on the USCONFIG program, refer to the MicroStation documentation.

MicroStation 4.0 If you use MicroStation 4.0, proceed as follows:

1. To start the configuration program, enter: **usconfig**<↵>.
2. When the current configuration is displayed select *DISPLAY ADAPTERS*.
3. First, select *VENDOR SUPPLIED DRIVER*, then *MS 4.0 miroCRYSTAL/twin (Board 1)* or *MS 4.0 miroVIDEO (Board 1)* for the first board.
4. To save the configuration, quit the configuration program with *EXIT AND SAVE*.

MicroStation 5.0 If you use MicroStation 5.0, proceed as follows:

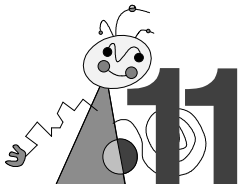
1. To start the configuration program, enter: **usconfig**<↵>.
2. Select the DOS or the Windows installation program.
3. When the current configuration is displayed select the *DISPLAY ADAPTERS* option.
4. Select *miroCRYSTAL/twin (Board 1)* or *miroVIDEO (Board 1)* for the first miro board.
5. To quit the configuration program, enter *EXIT AND SAVE*.

Using the driver

After having installed the driver on the hard disk and having configured MicroStation, you can use the driver.

To change the resolution, use the MIROMODE.EXE/MIROMAT.EXE program which has been copied to the hard disk during the installation.

With MicroStation 4.0, the driver supports 256 colors and all resolutions supported by your miro graphics board and your monitor.
With MicroStation 5.0, all video modes offered by your board are supported.



Technical data

Bus system PCI

Compatibility VGA register-compatible

Graphics processor Trio64V+

Video memory 2 MB EDO (Extended Data Out)

Power supply +5 V, max. 1 A
+12 V, max. 0.01 A

Video modes

Resolution	Bit/Pixel	Maximum refresh rates						
		TV	64 kHz	78 kHz	85 kHz	93 kHz	100 kHz	107 kHz
1408 x 1024	8	-	60 Hz	70 Hz	70 Hz	70 Hz	70 Hz	70 Hz
1280 x 1024	8	-	60 Hz	70 Hz	75 Hz	75 Hz	75 Hz	75 Hz
1152 x 864	16	-	70 Hz	75 Hz	75 Hz	75 Hz	75 Hz	75 Hz
1152 x 864	8	-	70 Hz	75 Hz	90 Hz	90 Hz	90 Hz	90 Hz
1024 x 768	16	-	75 Hz	75 Hz	75 Hz	75 Hz	75 Hz	75 Hz
1024 x 768	8	-	75 Hz	75 Hz	100 Hz	100 Hz	100 Hz	100 Hz
800 x 600	24	-	75 Hz	75 Hz	75 Hz	75 Hz	75 Hz	75 Hz
800 x 600	16	-	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
800 x 600	8	-	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
768 x 576	24	x	-	-	-	-	-	-
640 x 480	24	x	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
640 x 480	16	x	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
640 x 480	8	x	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz

Video Timing

- Horizontal frequency:
  31 kHz to 83 kHz, depending on the operation mode
- image refresh rate:
  60 Hz to 100 Hz, non-interlaced,
- pixel frequency:
  25 MHz to 135 MHz, depending on the operation mode

Options Monitor, shielded monitor cable, upgrade kit

Other Vesa DDC

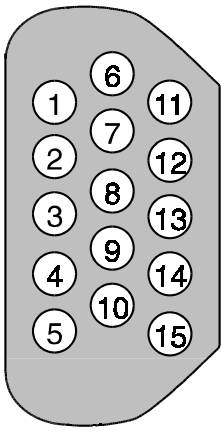
Notes

Appendix

15-PIN D-TYPE VIDEO PORT

The miroVIDEO 22SD graphics boards are equipped with a 15-pin D-type connector to which the video cable attaches. The other end of the video cable connects to the monitor.

The following illustration and the table show the video output and the corresponding pin allocation:



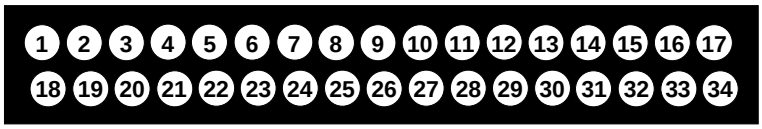
15-pin D-type connector

Pin No.	Pin Allocation
1	Red
2	Green
3	Blue
4	Free
5	Ground (analog)
6	Ground (red)
7	Ground (green)
8	Ground (blue)
9	Free
10	Ground (sync.)
11	Free
12	Free
13	HSync
14	VSync
15	Free

LPB FEATURE CONNECTOR

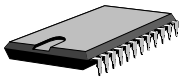
The miroVIDEO 22SD graphics boards can be used together with a video overlay board. For this purpose you need the LPB feature connector.

The following table provides a pin allocation overview.



Pin No.	Pin Allocation
1	Pixel data P0
2	Pixel data P1
3	Pixel data P2
4	Pixel data P3
5	Pixel data P4
6	Pixel data P5
7	Pixel data P6
8	Pixel data P7
9	Clock
10	Reserved
11	HSync
12	VSync
13	Ground
14	Ground
15	Ground
16	Ground
17	Enabling signal
18	Enabling signal
19	Enabling signal
20	Free
21	Ground
22	Ground
23	Ground
24	Ground
25	Free
26	Free
27	Free
28	Free
29	I²C clock
30	Ground
31	I²C Data
32	Free
33	Select 0
34	Select 1

miroVIDEO 22SD ADDRESS RANGE



For the miroVIDEO 22SD graphics board to run without problems you have to avoid address conflicts. Make sure that the addresses used by miroVIDEO 22SD are not also assigned to other components of your computer system.

I/O address range
The following table shows the I/O address areas that can be selected and used by miroVIDEO 22SD.

0E2E8h	
042E8h	04AE8h
082E8h	08AE8h
092E8h	09AE8h
0A2E8h	0AAE8h
0B2E8h	0BAE8h
046E8h	04EE8h
086E8h	08EE8h
096E8h	09EE8h
0A6E8h	0AEE8h
0B6E8h	0BEE8h

Additional VGA addresses
In addition the following addresses are used:

VGA video memory	VGA BIOS
0A0000h - 0BFFFFh	0C0000h - 0C7FFFh

MONITOR SELECTION

The following instructions will help you to select the right monitor during the software installation.

If you use a miro monitor

If you use a miro monitor, you will find the monitor name in the monitor selection list. For miro monitors, always the maximum vertical scan rate is selected (=100 Hz).

If you use a monitor that is listed twice, with the addition of *Microsoft* or. *miro Computer Products AG*, choose the later of the two listings. This will ensure that the system uses the latest monitor timings.

If you do not use a miro monitor

If you do not use a miro monitor and therefore you do not find your monitor in the list, you can select a monitor from the monitor classes *xx kHz multifrequency monitor* or *xx kHz VESA multi frequency monitor*.

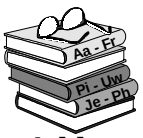
xx kHz multifrequency monitor:
Monitors belonging to this monitor class include timings with the maximum possible horizontal frequency and a maximum vertical scan rate of 100 Hz.

xx kHz VESA multi frequency monitor:
These monitors only include VESA-compatible timings which do not always use the monitor´s capabilities to the fullest but which, however, offer the correct synchronization.

Select the VESA timings, if your monitor image is not synchronized correctly, the image position is wrong, etc.

Operating your monitor at a refresh rate which is too high may lead to serious damage. If you do not know which horizontal frequency your monitor supports, please refer to your monitor´s documentation.

GLOSSARY



This glossary contains the most important concepts from the field of computer hardware, software and video. Cross-references are marked by this symbol 🕮.

Address All memory positions in a computer have numbers (addresses). Through these addresses each memory position can be addressed. Some addresses are reserved for certain 🕮 hardware components and must not be used. If two hardware components use the same address, there is an address conflict.

ANSI **A**merican **N**ational **S**tandards **I**nstitute. ANSI character set (🕮 Font): used by Microsoft Windows and Windows applications. The character assignation only differs slightly from the assignation of the 🕮 ASCII character set.

ASCII **A**merican **S**tandards **C**ommittee of **I**nformation **I**nterchange. ASCII character set (🕮 Font): standard character set used by IBM and compatible computers. The ASCII character set consists of 256 characters, the first 128 of which are standardized.

AUTOEXEC.BAT A special DOS 🕮 batch file which is processed automatically after the computer has been started. The file contains among other things commands which load the country-specific keyboard driver (🕮 Driver), set the time or load programs automatically.

AVI Abbreviation for **A**udio **V**ideo **I**nterleaved, standard format for digital video (🕮 Video for Windows).

Batch file A 🕮 DOS file where a sequence of commands is processed one after the other.

BIOS **B**asic **I**nput **O**utput **S**ystem. Number of basic input and output commands stored in a 🕮 ROM, PROM or EPROM. The 🕮 operating system uses these commands. The basic task of the BIOS is to control the data input and output. After starting the system the ROM BIOS performs some tests (checking the 🕮 interfaces, the disk drives, etc.).

Bit **Bi**nary Digi**t**. Smallest information unit in a computer. One bit can take on two states: “0” and “1”, two bits can take on 2^2=4 states and three bits 2^3=8, etc. In a computer those states are realized by “0 V” (no current = 0) and “5 V” (current = 1). To display a character (letter, number etc.), 8 bits = 1 🕮 byte are required.

Bus In a computer, busses provide for the communication between the 🕮 processor and the installed hardware (hard disk, graphics board, etc.). Depending on the bus width, the bus transfers a different amount of information. An 8-bit bus can transfer 8 🕮 bits (= 🕮 byte = one character) at a time.

Byte One byte consists of eight 🕮 bits. One byte represents exactly one character (letter, number etc.). The characters are binary-coded with “zero” (0) and “one” (1). The character “E” has the 🕮 ASCII code “01000101” or “45h” (hexadecimal).

CGA **C**olor **G**raphics **A**dapter (IBM). Graphics board which displays four colors in the graphics mode.

Clock frequency Rate at which individual commands are processed in a processor. The higher the 🕮 clock frequency, the quicker the commands are processed.

CLUT **C**olor **L**ook **U**p **T**able. Color table which contains all indexed color values.

CODEC Acronym for **Co**mpressor/**Dec**ompressor, compresses (packs) and decompresses (unpacks) image data.

Color depth Number of 🕮 bits containing color information for each 🕮 pixel. A color depth of 1 bit displays only black and white (2^1=2 colors). At a color depth of 8 bits 2^8=256 colors are available and at 24 bits 2^{24}=16,777,216 (🕮 TrueColor) colors are available.

CONFIG.SYS A 🕮 DOS configuration file which is processed automatically when the system starts. The CONFIG.SYS file includes 🕮 drivers which control the output to the monitor and the keyboard and the mouse.

Digital video Digital video stores information bit by bit in a file (in contrast to analog storage media).

DIP switch **D**ual **I**nline **P**ackage switch. A row of small switches designed to make certain hardware presettings.

Dithering Method to avoid extreme color contrasts, which occur with a reduced number of colors.

DOS **D**isk **O**perating **S**ystem. The most common 🕮 operating system for PCs (**P**ersonal **C**omputer). MS DOS is the **M**icro**s**oft version of DOS.

Driver Programs which integrate the hardware (e.g. driver for a CD-ROM drive) in the computer and which adapt the software to the hardware (e.g. driver for a graphical user interface, such as Microsoft Windows). The software then uses the features of the graphics board.

EGA **E**nhanced **G**raphics **A**dapter (IBM), graphics board which displays 16 colors in the graphics mode.

EISA bus **E**xtended **I**ndustry **S**tandard **A**rchitecture. 32-bit bus: The EISA bus can transfer an amount of data of 33 🕮 MB per second at a 🕮 clock frequency of 8.33 Mhz.

Fixed-frequency monitor Monitor operating at a very small frequency range (🕮 multifrequency monitor).

Font Character set in a certain type, size and style, e.g. Times New Roman 11, normal; Times New Roman 11, italics; Times New Roman 11, bold; Times New Roman 11, bold, italics.

Graphics board Graphics boards are the “link” between the computer and the monitor. Without a graphics board no image appears on the screen. Graphics boards operate in two modes: the text mode and the graphics mode. In the text mode only 🕮 ASCII characters are displayed. The ASCII character set includes some simple “graphical” characters to display simple graphics. The graphics mode uses individual 🕮 pixels. The more pixels are available (the higher the 🕮 resolution) the more detailed characters and graphics can be displayed.

Hardware The hardware includes all computer components which are “hard”, such as the monitor, the hard disk, the keyboard, the mouse and the printer.

HGC **H**ercules **G**raphics **C**ard, monochrome (black and white) graphics board.

Horizontal scan rate Number of horizontal scans of the electron beam per second required to create a new line. The higher the 🕮 resolution the higher the required horizontal scan rate.

Interface Link between two parts of a system or between two systems where information, pulses and signals are adapted in a way that the receiving part can understand the sending part. For example, signals which the computer sends to the printer have to be adapted by an interface so that the printer "understands" what it has to print.

Interlaced Image refreshing technique: the screen is subdivided into lines. When refreshing the image first all even lines and then all odd lines are refreshed.

ISA bus **I**nternational **S**tandard **A**rchitecture. 16-bit bus which transfers 8 📖 MB of data per second at a 📖 clock frequency of 8 MHz.

Jumper Jumpers can set up or interrupt electrical leads. To establish electrical leads with a jumper, the jumper has to be mounted, to interrupt the lead the jumper has to be removed.

KB 1 KB (Kilobyte) is equal to 1024 📖 bytes. Here "K" (kilo) is always equal to "1024".

MB 1 MB (Megabyte) equals 1024 📖 KB.

MDA **M**onochrome **D**isplay **A**dapter. Monochrome (black and white) graphics board.

Multifrequency monitor A multifrequency monitor adapts itself automatically to different frequencies supplied by the graphics board (📖 fixed-frequency monitor) and can display different 📖 resolutions.

Non-interlaced Image refresh method, where the complete image is generated without skipping lines. A non-interlaced image flickers much less than an 📖 interlaced image.

Operating system The operating system provides for the communication between 📖 hardware, 📖 software and the user. The tasks of the operating system are among others the file and the program management.

Parallel interface The parallel or Centronics 📖 interface transfers data through an 8-bit data line. This means that 8 📖 bits (1 📖 byte) can be transferred at a time. The transfer through the parallel interface is considerably faster than the transfer through the 📖 serial interface, over long distances the parallel data transfer is, however, more susceptible to interference. Parallel interfaces are designated by LPT and a number (e.g. LPT1).

PCI Local Bus **P**eripheral **C**omponent **I**nterconnect. Local Bus concept by Intel: 32-bit bus, a PCI bus can transfer 132 MB per second (max.) at a 📖 clock frequency of 33 MHz.

Pixel Picture element. Pixels are the smallest elements of a monitor image (📖 resolution).

Pixel frequency Rate at which the pixels appear on the screen.

RAM **R**andom **A**ccess **M**emory. A RAM is a read-write memory component from which data can be read and to which data can be written any time. The computer memory is equipped with RAM components. The memory is a so-called "volatile" memory meaning that the memory contents are removed as soon as the computer is switched off.

Refresh rate Also vertical scan rate. Number of image refreshes per second measured in Hertz (Hz). The higher the vertical scan rate the less flicker.

Resolution Number of 📖 horizontal and vertical pixels. 1408 x 1024 means that 1408 pixels are displayed horizontally and 1024 pixels are displayed on the monitor vertically.

The higher the resolution the more details the monitor can display.

RGB Abbreviation for **R**ed, **G**reen and **B**lue, the basic colors of additive color mixing. RGB describes the method used in computer technology where image information is transferred by dividing it into the three basic colors.

ROM **R**ead **O**nly **M**emory. A ROM is a memory component which can only be read but which cannot be modified. The ROM's contents remain in the component also after the computer has been switched off. All functions which have to be available immediately after switching the computer on, e.g. the data for the system test, the character output on the screen, etc. are stored in ROM components. There are also PROMs (**P**rogrammable **ROM**) EPROMs (**E**rasable **PROM**) and EEPROMs (**E**lectric **EPROM**).

Scaling Adaptation of an image to a different size.

Serial interface Also RS232. The serial interface transfers data through a data line bit by bit (all 🕮 bits of a 🕮 byte one after the other). The serial data transfer is considerably slower than the transfer through the 🕮 parallel interface but it is less susceptible to interference. Serial interfaces are designated by COM and a number (e.g. COM1).

Software General term for all programs a computer can run (system programs, application programs, 🕮 drivers etc.) and files.

TrueColor 16.7 million colors can be displayed at a time (🕮 color depth).

Vertical scan rate 🕮 Refresh rate.

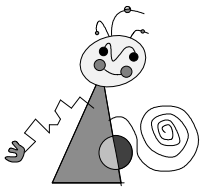
VESA **V**ideo **E**lectronic **S**tandards **A**ssociation. Committee founded in 1988 in the USA which establishes common standards for the computer technology.

VESA Local Bus Bus concept defined by the 🕮 VESA committee: 32-bit bus operating at a 🕮 clock frequency of up to 50 MHz. At a clock frequency of 33 MHz the VL bus transfers up to 132 🕮 MB per second (max.).

VGA **V**ideo **G**raphics **A**rray (IBM), graphics board which displays 256 colors in the graphics mode.

Video for Windows Video for Windows is a Microsoft Windows system extension which allows to record, to store and to play back video sequences from hard disk (🕮 digital video).

YUV Color model where **Y** delivers the brightness information and **U** and **V** the color information.



FCC Compliance Statement

FOR YOUR OWN SAFETY

NOTE: Shielded cables should be used for a composite interface. This is to ensure continued protection against radio frequency interference.

FCC WARNING STATEMENT

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Shielded interface cable must be used in order to comply with the emmission limits.

LABEL WARNING

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE

KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY

Geräteart: Grafik-Board
Type of equipment: Graphics board

Produkt / Product : **miroVIDEO 22SD**

Das bezeichnete Produkt stimmt mit den Vorschriften folgender EU- Richtlinie(n) überein:
The aforementioned product complies with the following European Council Directive(s):

89/336/EWG — Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit
Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility

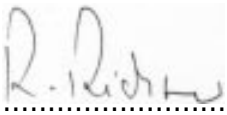
Zur vollständigen Einhaltung dieser Richtlinie(n) wurden folgende Normen herangezogen:
To fully comply with this(these) Directive(s), the following standards have been used:

EN 55022 Class B: 1987
EN 50082-1: 1992 (ICE 801-2,-4 / ENV50140 / ENV 50141

Dieser Erklärung liegt zugrunde: Prüfbericht(e) des EMV-Prüflabors
This certification is based on: Test report(s) generated by EMI-test laboratory

Aussteller / Holder of certificate : **miro Computer Products AG**
Carl-Miele-Str. 4
D - 38112 Braunschweig

Braunschweig, 14.08.1996
Place) (Datum / Date)



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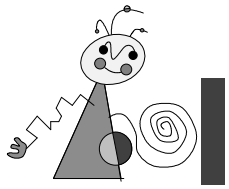

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