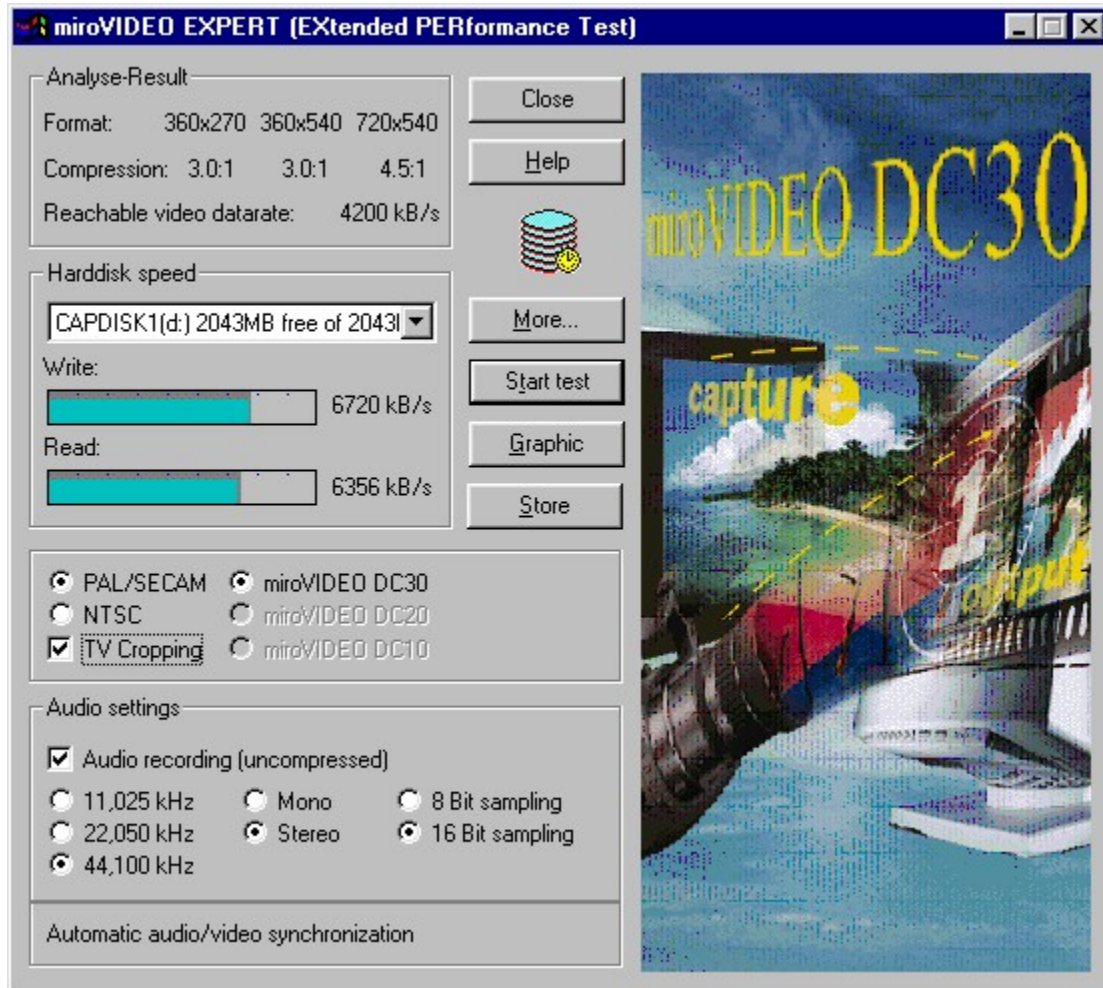


miroVIDEO EXPERT: hard disk transfer test utility

miroVIDEO-Expert measures the performance of your hard disk drive.

To start miroVIDEO-Expert, double-click the miroVIDEO-Expert icon in the Program Group of your miro video board.

If more than one hard drive is installed in your system, you should generally test all hard drives present and then use the hard drive with the highest data rate for video.



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Analyse-Result

The data rate at which an M-JPEG video sequence can be captured without dropped frames is calculated from the data rate of the PCI memory link and the write speed of your hard drive.

The recommended image formats, the corresponding compression factors, and the data rate that can be achieved are listed.

Hard disk speed

Select which hard drive you want to test the performance of and click on Start Test. The hard drive should be defragmented so that the results are real values.

The hard drive test will first test the speed at which data is written to the hard drive and/or the speed at which data can be read from the hard drive. It then calculates the optimum image size with the respective compression factor.

Video standard

If you installed a miroVIDEO board in your computer (miroVIDEO DC10, miroVIDEO DC20, or miroVIDEO DC30), the installed board is marked. If you have not installed a miroVIDEO board, you can test what performance your system would achieve together with one of the three boards.

In Europe PAL/SECAM is selected as TV standard, in the USA NTSC. Switch between both TV standards to see the difference in the data rate which can be achieved.

When enabling *TV Cropping*, video is recorded which will appear completely on the TV screen. Only irrelevant data at the image margin are cut off which reduces the data rate.

Audio settings

Lets you enable/disable the *Audio recording* option either before or after the hard disk test has been completed. If you enabled this option, the audio data are taken into account when calculating the maximum recording data rate.

miroVIDEO-Expert based its calculation on uncompressed audio data which are transferred via an 8-bit or 16-bit DMA channel. For special sound boards (memory mapped, busmaster) the transfer rate depends on the transfer rate of the sound board and cannot be taken into account. For miroVIDEO DC30 the audio data will be taken into consideration.

Start test

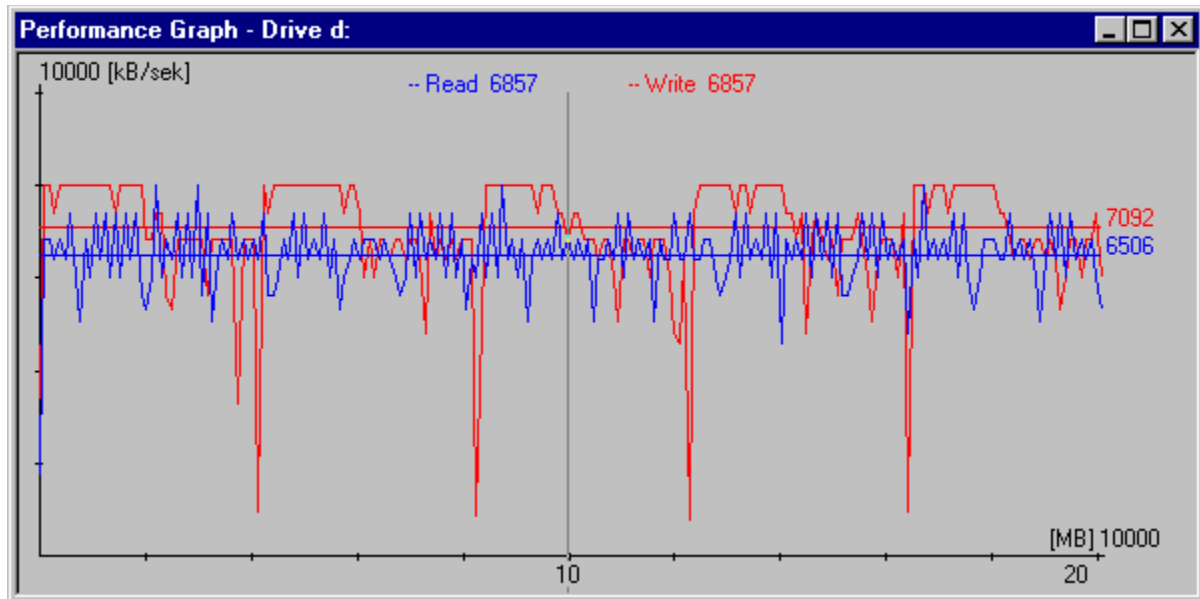
When clicking on *Start Test*, the miro hard disk transfer test starts.

First, miroVIDEO-Expert saves a [File](#) on the hard disk and determines the write speed in this way. Second, miroVIDEO-Expert reads the file and determines the read speed. Then, the test utility takes these data as a basis for calculating the maximum recording data rate or the minimum compression factor.

You can abort the test by pressing <Esc>. In this case, only the data which have been read or written are taken into account and the result may be incorrect.

Graphic

If you click the *Graphic* button, the read and write speed determined by miroVIDEO EXPERT is displayed.



The read speed is marked by blue lines, the write speed by red ones.

Store

Select the hard disk (or the hard disks, if more than one hard disk is installed), you want to use for recording video. Click *Store* to use the value calculated by miroVIDEO-Expert for the maximum recording data rate. You can select this value by pressing the *Default* button. When quitting the program all measured values will be rejected.

More

The *More...* button let you determine the file size you want to record. The file has to have a size between 10 MB and 2 GB.

The larger the file size, the more precise the result. You can abort the test pressing <Esc>. In this case, the data which have just been written will be taken as a basis.

Close

Click on *Close* to close the hard disk transfer program.

Technical background and tips

miroVIDEO EXPERT functions

miroVIDEO EXPERT tries to support you to set your miroVIDEO board to the maximum data rate of your system. The type of optimization depends on the hard disk type (E-IDE, SCSI), the hard disk interface (PIO mode, Fast or Wide SCSI), the hard disk controller (slave, busmaster), the bus settings (ISA: waitstates, clock frequency, PCI: burst, processor clock), the operating system (Windows 95, Windows NT), your motherboard setup settings (E-IDE support, burst mode) and the driver support for your hard disk or controller.

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Preparation

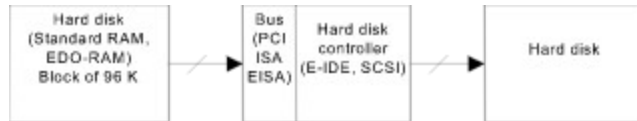
Before you start testing your system and to be able to interpret the results correctly, make sure you know:

- your hard disk type (IDE, E-IDE, SCSI)
- your hard disk controller type (only SCSI)
- sound board type (8 bit DMA or 16 bit DMA)

Make sure your hard disk is not fragmented and you have enough space on your hard disk.

Measuring the data rate

The program creates a data block typical of the miroVIDEO DC30, for the miroVIDEO DC20 board it creates a data block of 96 KB and sends this to the hard disk several times. From the number of transferred blocks and the time it took to send them, the transfer rate for reading and writing can be calculated.



This rate can only be achieved if the computer has 100% time to transfer the data. Using a real application, however, e.g. VideoCapture, the processor is also busy with other tasks.

A measured high data rate, however, does not imply that your system settings are especially suitable for video editing because interruptions are not measured (hard disk calibration etc.) For the test program this means that there is a slight decrease in the data rate, for the real application a dropped frame occurs in case the image cannot be stored in the memory.

In addition, you cannot tell by the measured data rate in which way the data blocks are transferred. In video editing, data occur in blocks. For PAL 25 times per second blocks of up to 240 KB (miroVIDEO DC 30), or 128 KB (miroVIDEO DC20 and miroVIDEO DC10) have to be transferred to the hard disk.

Therefore it is appropriate to send a data block as fast as possible to the hard disk so that the system is no longer occupied and the hard disk or the hard disk controller can save the data (example: SCSI busmaster controller). An SCSI hard disk having a transfer rate of 3 MByte can be better for video editing than an E-IDE hard disk having a transfer rate of 5 MByte.

The hard disk transfer speed is considerably higher on the outer tracks than on the inner tracks of a hard disk (Zone Block Recording) because there are more sectors while the rotation speed remains the same.

⇒ If possible use an empty hard disk or partition the disk and use the first partition for recording and playing back video.

Sound recording

If you want to record sound in addition to video, you have to take this into consideration. Recording sound does not influence the hard disk speed but the time which remains to “pick up” and to save the sound data. When recording sound at a high-quality in 16 bits and a sample rate of 44.1 kHz, 172K sound data have to be processed.



miroVIDEO DC30 transfers sound and video together via PCI bus mastering into the memory. This transfer depends on the PCI clock frequency and can amount to 132 MB/s.

Evaluation of the result

After the test has been completed, the result for the tested hard disk is displayed as a bar. For (E)-IDE disk the difference between write and the read speed should not exceed 20 %. A difference higher than 20 % hints at a fragmented hard disk or a cache (smartdrive) you should disable when recording and editing video.

From the write speed of your hard disk and the transfer speed of your miroVIDEO board and possible audio options a maximum data rate can be calculated. This is an ideal rate which can be influenced under real conditions by the exploitation of the system resources (network, DOS box, processor). If your system does not reach the calculated value, it may be busy with other tasks in the background.

From the maximum data rate the compression factor can be calculated for the image format. NTSC fullsize video creates a flow of data of 18 MB/s. To achieve a good quality, the compression factor should not exceed 12:1 otherwise JPEG artifacts occur. Optimize the image size and the audio options to get a lower compression factor.

Check list

General

Smartdrive disabled?

E-IDE hard disk

In the BIOS setup E-IDE or with a driver enabled?

SCSI hard disk

Windows 95 recommended (for miroVIDEO DC30 and miro VIDEO DC10 prerequisite)

Further information

For further information on the optimization, read the current README files for your miroVIDEO board. Look into the mailbox for new drives and README files or ask your vendor. If you want to purchase a new system, test this with your miroVIDEO board and miroVIDEO EXPERT.

