Selecting Audio Test Options

The Audio Test monitors the effect of playing a digital sound file. When testing a short file, VidTest plays the file several times. With a longer file, VidTest plays the file once in its entirety.

> To select Audio Test options

1 From the Audio Performance Test Configuration dialog box, select the options you want.

    If you use the Browse button, you must select a .WAV file for this test.

2 Choose OK.

Audio Test Options

You can supply the following information for the Audio Performance Test.

Option	Specifies
Wave Device	The audio device driver and associated audio board to test.
File Name	The audio file to use in the test. VIDTEST.WAV is the default audio file supplied for the test (uncompressed, 8-bit, 22.050 kHz).
Writes per second	The frequency that the test writes blocks of audio data to the audio device. Video for Windows retrieves and plays audio and video at the rate you specify, so be sure to use the same value here as you use in the Video Playback and Display tests. Most .AVI files use 15 fps for this value.

See Also

Interpreting Audio Test Raw Data

Interpreting Component Test Results

Running Component Tests (Advanced)

Interpreting Audio Test Raw Data

Raw data from the Audio Performance Test produces three kinds of test statistics.

Test Results

Test results are gathered during the test or calculated from information gathered during the test.

Parameter	Specifies
CPU Usage	The amount of CPU processing power this test used. CPU usage is expressed as a percentage of the your computer's total processing power. For good performance, this value should be 10 percent or less.
Total Test Time	The duration of the Audio Test in milliseconds. Sound files that are less than seven seconds are played more than once to give more accurate results.

Test Parameters

The test parameters reiterate the audio test options you selected before running the test. See Selecting Audio Test Options for specifics.

Test File Information

The test file has the following characteristics:

Option	Specifies
Total Data Read	The number of bytes of audio data read from the test file.
Channels	The audio stream as Monaural (1 channel) or Stereo (2 channels).
Sample Rate	The recording frequency, commonly: 11.025 kHz (voice grade), 22.05 kHz (FM radio quality), and 44.1 kHz (CD quality).
Sample Size	8 or 16 bit samples. 8-bit samples require less storage; 16-bit samples provide better quality.
Block Alignment	The number of bytes in a sample or the data block size. (This value is used by the audio device driver to allocate its buffers.)
Average Bytes per Second	The number of bytes required to play each second of the audio file. For example, for audio data in pulse-coded modulated (PCM) format, the average bytes per second is the product of the number of channels, sample rate, and the sample size.
Format Tag	The audio data type, such as PCM or ADPCM.
	Pulse Code Modulation (PCM) is a method of digitizing sound by representing it as a series of

numeric values. PCM samples the sound source at a fixed rate and stores the sampled values.

Adaptive Differential Pulse Code Modulation (ADPCM) is a method of digitizing sound that extends PCM by predicting sample values and then storing the difference between the predicted and sampled values. ADPCM typically produces smaller values (and files) than PCM; however, VidTest only tests PCM sound files.

See Also
Selecting Audio Test Options
Running Component Tests (Advanced)

audio device driver

A small application that controls the sound system. To use a sound system with Windows, you must install an audio device driver.

One audio device driver in your system is the Sound Mapper. This driver ensures that Windows uses an audio device driver that matches the characteristics of the audio file (or data) that you want to play. If your computer does not support the audio format, Sound Mapper converts the files so you can play them.

Configuring Video for Windows

The Video Playback Options dialog box lets you set adjust the way a video sequence appears on your screen for video clips used in the Video Playback Performance Test.

Note: Changing these options affects playback of all video sequences that use the Video for Windows device driver.

> To configure Video for Windows

1 In the main VidTest window, choose the Advanced button.
2 Choose the Video button.
3 Choose the Configure Video button.
4 In the Video Playback Options dialog box, choose the options you want to use.

Configuration Options

Option	Does this
Video Mode	Controls the video image display. In Window mode, the video sequence plays in a small window. In Full Screen mode, the screen temporarily switches to 320 x 240 display resolution, and the video sequence plays in a large box.
Zoom by 2	Doubles the frame size of the playback area.
Play Only If Waveform Device Available	Waits to play the video sequence until the audio resources become available (assuming the video sequence includes a sound track and the audio subsystem is already in use).
	If not selected, VidTest plays the video sequence immediately with or without the soundtrack, depending on the availability of the audio resources.
Seek To Nearest Full Frame	Plays the nearest full frame when a jump to a non-consecutive frame occurs (always displaying the correct frame image).
	If not selected, VidTest chooses the exact frame when a jump to a non-consecutive frame occurs. VidTest displays the current frame data correctly. However, if the frame depends on other frames for some of its data, the frame display might contain inaccuracies.
Skip Video Frames If Behind	Prioritizes the sound track of a video sequence above the frame. If VidTest cannot maintain the playback pace, it skips video frames to keep pace with the audio track.
	If not selected, VidTest plays all frames of the video sequence and skips portions of the audio track as needed.
Don't Buffer Offscreen	Provides a slightly faster video playback rate. If your system's video playback lags only slightly

behind the audio playback rate, this option might let you play the video sequence without dropping frames.

If you select this option and your system still lags behind the playback rate of the video sequence, the video images might become fuzzy.

See Also

Selecting Video Playback Test Options

The Video Playback Test tests the playback performance of a specific video clip. This test monitors the number of frames that are skipped and the number of blank sections of audio during playback of the video clip.

> To select Video Playback Test options

1 From the Video Playback Performance Test Configuration dialog box, select the options you want to use.

2 Choose OK.

Video Playback Test Options

You can supply the following information for the Video Performance Test.

Option	Specifies
File Name	The AVI file to use in the test. The compression method can affect the video clip's playback performance and quality. Compressed video files require less disk space and a lower data streaming rate to process the files. Compressed video files are loaded in small segments, so they can be played on systems with limited memory.
Configure Video button	Playback settings for the Video for Windows driver (MCIAVI).

See Also

Starting the Performance Tests

Configuring Video for Windows

Running the Complete Set of Tests

Interpreting Overall VidTest Results

Interpreting Component Test Results

Interpreting Video Playback Test Results

Interpreting Video Playback Performance Test Results

Interpreting Video Playback Performance Test Results

Raw data from the Video Playback Performance Test produces three kinds of test statistics.

Test Results

Test results are gathered during the test or calculated from information gathered during the test.

Parameter	Reports
Frames Skipped	How many frames out of the total number of frames were skipped.
Audio Breaks	The number of breaks in the audio track ocurring during playback. Breaks usually indicate blockages in other parts of the system, such as network activity, resource limitations, or other system loads. If an audio break occurs in your tests, try running the other performance tests (Display, Audio, and Streaming) to determine the nature of the blockages.

Test Parameters

The test parameters reiterate the audio test options you selected before running the test. See Selecting Video Playback Test Options for specifics.

Test File Information

The test file has the following characteristics:

Option	Specifies
File Length	The number of frames in the file.
Frame Width	The frame width in pixels of the test image.
Frame Height	The frame height in pixels of the test image.
Bit Depth	The number of bits used to represent the color of each pixel in a frame. Bit depth ranges from 4 bits (a maximum of 16 different colors) to 24 bits (a maximum of 16 million colors).
Frame Rate	The number of frames displayed each second of playback.
Frame Compression	How pixel data in each frame is sent to the display:
	RGB stores frames as uncompressed images with Red/Green/Blue color information.
	RLE stores frames as compressed images with run-length encoded color information.
Video Compression	The video storage format used to reduce the overall file size. VidTest recognizes the following formats (compressed or uncompressed):

Full Frames (uncompressed image)
Microsoft RLE Compression
Microsoft Video 1 Compression
Intel Indeo Compression

See Also

[Configuring Video for Windows](#)
[Running the Complete Set of Tests](#)
[Selecting Video Playback Test Options](#)

Video for Windows device driver

The Video for Windows device driver (MCIAVI.DRV) controls playback of video sequences stored as <u>AVI files.</u> Media Player also uses this driver to play video sequences.

pixel

The smallest graphics unit on the screen. Also known as picture elements (pels).

Selecting Display Test Options

The Display Test creates and sends images to the system display several times a second in order to test the performance of the video display adapter and its driver for use with video clips.

> To select Display Test options

1 In the Display Performance Test Configuration dialog box, select the options you want to use.

2 Choose OK.

Display Test Options

You can supply the following information for the Display Test.

Option	Specifies
Frames	The number of frames displayed each second.
Width	The frame width in <u>pixels</u> of the test image.
Height	The frame height in pixels of the test image.
Zoom by 2	That the frame size is doubled for the test.
Format	How pixel data is sent to the display.
	RGB stores frames as uncompressed images with Red/Green/Blue color information.
	RLE stores frames as compressed images with <u>run-length encoded</u> color information. RLE compression applies only to <u>AVI files</u> with 8-bit color.
Colors	Specifies the image depth (the number of bits used to define the color of each pixel in a frame). Both the display driver and the display adapter must support the image depth you choose.
	4 bits per pixel supports images up to 16 colors.
	8 bits per pixel supports images up to 256 colors.
	16 bits per pixel supports images up to 65,535 colors (or 32,767 colors on some display drivers).
	24 bits per pixel supports images up to 16 million colors.

See Also

Interpreting Display Test Raw Data

Raw data from the Display Performance Test produces two kinds of test statistics.

Test Results

Test results are gathered during the test or calculated from data gathered during the test.

Parameter	Specifies
CPU Usage	The amount of CPU processing power the test used. CPU usage is expressed as a percentage of your computer's total processing power. For optimal video playback performance, this value should be less than 30 percent.
Total Test Time	The duration of the Display Test, normally two seconds.

Test Parameters

The test parameters reiterate the display test options you selected before running the test. See Selecting Display Test Options for specifics.

See Also

Running Component Tests (Advanced)

Selecting Display Test Options

Run-Length Encoding

A data-compression method based on recognizing repeated data values. When used with images, RLE scans each line in an image encoding information for portions that have repeated pixel values. The encoded information is stored instead of the original pixel data. The system then recreates the image from the stored information.

Selecting Data Streaming Test Options

The Data Streaming Test monitors the rate at which data is transferred from either your hard disk or CD-ROM to your computer's RAM. The data streaming test consists of two phases: priming and data gathering.

- The priming phase occurs first and activates the streaming device. In the priming phase, the speed of the streaming device increases to an optimal performance level for transferring data.
- The data-gathering phase of the test collects information while the streaming device operates in the optimal portion of its performance range.

> To select Data Streaming Test options

1 From the Data Streaming Performance Test Configuration dialog box, select the options you want to use.

   The most important option is the File Name that identifies the device, the path, and the test file to use in the test. Other options are more relevant for video authors and device driver developers.

2 Choose OK.

Streaming Test Options

You can supply the following information for the Data Streaming Test.

Option	Specifies
File Name	The device, path, and file to use. For this test, select any file that is 1.5MB or larger.
Requested Transfer Rate	The rate at which data is transferred from the hard disk or CD-ROM to RAM. The standard transfer rate for CD-ROM drives is 150K per second. Transfer rates for hard disks vary from 100K per second to over 300K per second.
Read Block Size	The number of bytes to read and transfer each time the disk or CD-ROM drive is accessed during the data-gathering phase.
Allowed Percent Block	The maximum percent of time that the CPU should wait for data from the disk or CD-ROM drive. Although this option does not affect performance, it provides a goal for the streaming device to attain and is reported as the first **Reads Exceeding xx MS** field in the Test Results. The default value is 40 percent, the standard CD-ROM streaming performance for an MPC.
Prime Transfer Rate	The sustained data read rate for the priming phase.
Prime Read Block Size	The number of bytes to read and transfer each time the disk or CD-ROM drive is accessed during the priming phase.
Total Prime Size	The length (in bytes) of the priming phase.
DOS Addressable	That the buffers used in the test are located in

Buffers the <u>MS-DOS address space.</u> Reads and writes to buffers in this section of memory are performed more quickly than buffers located in extended memory. If not selected, buffers for the test are allocated from <u>extended memory.</u>

See Also

<u>Interpreting Component Test Results</u>
<u>Interpreting Data Streaming Test Raw Data</u>
<u>Running Component Tests (Advanced)</u>

Interpreting Data Streaming Test Raw Data

Raw data from the Data Streaming Test produces three kinds of test statistics.

Test Results

Test results are gathered during the test or calculated from information gathered during the test.

Option	Specifies
Overall CPU Usage	The amount of CPU processing power used in streaming data. CPU usage is expressed as a percentage of your computer's total processing power. For optimal video playback performance, this value should be less than 30 percent.
Background CPU Usage	How the Data Streaming Test affects other CPU processing that occurs while the CPU waits for data or other resources.
Overall Transfer Rate	The transfer rate achieved during the data-gathering phase.
Total Data Read	The total number of bytes read in the test.
Total Time Blocked by Reads	The accumulated time that the CPU waited for data buffers.
Reads Exceeding xx MS	The number of reads from the streaming device that exceeded the stated time. The first entry identifies the amount of time beyond the **Allowed Percent Block** value that the CPU waitied. The second entry identifies the number of reads of the data streaming device that hindered the **Requested Transfer Rate**.
Longest Time Blocked By Read	The longest time that the CPU waited for the next buffer of data.
Shortest Time Blocked By Read	The shortest time that the CPU waited for the next buffer of data.

Test Parameters and Advanced Parameters

The Test Parameters and Advanced Parameters reiterate the audio test options you selected before running the test. See Selecting Data Streaming Test Options for specifics.

See Also
Running Component Tests (Advanced)
Selecting Data Streaming Test Options

streaming test priming phase

The priming phase, which occurs at the beginning of the streaming test, activates the streaming device and allows it time to reach its optimal operating speed. The optimal operating speed provides the best performance level for transferring data by minimizing the time required to retrieve data.

streaming test data-gathering phase

The data-gathering phase collects information while the streaming device operates in the optimal portion of its performance range.

buffer

A section of Random Access Memory (RAM) that is used to hold data temporarily.

MS-DOS address space

The first megabyte of Random Access Memory (RAM) in your computer that is accessible by MS-DOS applications.

Additional RAM is called extended memory and is accessible by Windows-based applications and MS-DOS memory manager applications.

Buffers in the MS-DOS address space transfer data more quickly than buffers in extended memory; however, the amount of MS-DOS memory is limited. If insufficient MS-DOS memory is available for a specific operation, the operation might be performed using extended memory.

extended memory

The Random Access Memory (RAM) in excess of one megabyte. Extended memory is accessible by Windows-based applications, but not by MS-DOS.

The first megabyte of Random Access Memory (RAM), called the MS-DOS address space, is accessible by MS-DOS and Windows-based applications.

Typically, extended memory provides a much larger portion of memory than the MS-DOS address space; however, buffers in extended memory operate more slowly than buffers in the MS-DOS address space.