Minimum Hardware Requirements

- IBM® compatible computer with Intel® Pentium™ or equivalent

- Microsoft® Windows 95™ or Microsoft Windows NT™ 4.0 operating system

- DirectX™ -supported SVGA graphics card with 2 MB of RAM or more

- 16 MB of RAM - Microsoft Windows 95

- 32 MB of RAM - Microsoft Windows NT 4.0

- PC-compatible CD-ROM drive

- Windows-compatible mouse (or other pointing device)

Optional Hardware

- DirectX-supported sound card

- Scala®-supported MPEG decoder card

Media and Driver Support

Graphics:
BMP, GIF, IFF (ILBM), JPEG, PCX, photo CD, PNG, TIFF

Sound:
MIDI, WAV, CD-Audio (requires sound card, CD-ROM drive)

Video and Animation:
Video for Windows (AVI), QuickTime® for Windows (MOV), MPEG, other ActiveMovie™ supported digital video, AnimGIF (89a) FLC (fixed-palette), FLI (fixed-palette).

Font:
TrueType®, ScalaType

Drivers:
DirectX2, DirectX3, ActiveMovie

For more detailed recommendations and information, see the Hardware Recommendations Guide. A list of Internet World Wide Web (WWW) links* of products mentioned in the guide can be found in a separate section.

* If the hardware manufacturer hosts an official web site or homepage

Hardware Recommendations for use with Scala MultiMedia MM200

(Revised February 1997)

Note: Products listed in this document do not imply endorsement by the companies mentioned.

System Recommendations

Recommended CPUs

Although Scala can run on a 486 based system, we highly recommend using an Intel® Pentium™ or equivalent processor. There are a number of manufacturers of Pentium like processors besides Intel. They include AMD®, Cyrix®, IBM®, Texas Instruments® and others. If you decide to use an Intel Pentium (or equivalent) based system, use at least a 90 MHz or faster processor.

RAM considerations

MM200 requires a minimum of 16 MB of RAM for Windows 95™ and at least 32 MB of RAM for Windows NT™ 4.0. We highly recommend adding additional RAM if you plan on making productions that include a large number of FLC animations or require high-performance, high-impact playback.

Many of today's systems can take advantage of different RAM types. Some are faster than others. Two of the most popular are EDO DRAM (Extended Data Out DRAM) and SDRAM (Synchronous DRAM), which can increase performance by up to 35%, compared to standard DRAM (Dynamic RAM), especially when using sequential data (such as looping animations that play back from RAM). Of course, your system's motherboard must have special circuitry to support this EDO RAM or SDRAM. SDRAM is typically available on many high-performance (e.g. 180+ MHz) Pentium and Pentium Pro™ class systems.

Secondary cache considerations

A secondary cache is specialized, high-speed memory between the CPU and the computer's main memory. (Primary cache is on the processor itself.) Because CPUs can operate so quickly, the main memory on your computer system is typically too slow to keep up with the CPU. The cache is used to store the most often used data, reducing the need to retrieve information from slower main memory.

Systems with a Pentium or equivalent processor typically include a 256 KB secondary cache. However, due to the increased clock speed of some processors, some up to 200 MHz, even the memory chips used for the secondary cache can be too slow. To increase performance, a new type of memory chip for the cache was developed, called Pipeline Burst Memory.

We recommend Pipeline Burst Cache memory for Pentium or equivalent processors running at 90 MHz or faster. We also recommend a secondary cache size of at least 512 KB, if available, for processors running 133 MHz or faster and Pentium Pro processors.

System bus considerations

We highly recommend using Scala with motherboards that include 32-bit Peripheral Component Interconnect (PCI) slots or VESA Video Local Bus (VLB) slots. Systems with a PCI or VLB compatible video card and I/O controller (the card that connects to the floppy and hard drive, CD-ROM and serial/parallel ports) offer two to four times the video and I/O performance as systems that have only 16-bit AT (ISA) slots and cards. It should be noted that using motherboards that include PCI slots offer the best performance when coupled with a Pentium or equivalent processor.

CPU utilization considerations

Although many users are unaware of it, CPU utilization is a significant factor in the performance of a multimedia playback system, especially if the multimedia content is of a high-speed, high-impact nature (using many animations, quick transitions and high-quality audio).

Some peripherals rely on the CPU to do most of the processing. This means that there is less CPU time available to service other parts of the computer system, especially software. Peripherals that may affect CPU performance include sound cards, network cards, CD-ROM drives, hard drives and SCSI controller cards.

If high-speed, high-impact performance is important to your multimedia productions, then look for products that have low CPU requirements. A SCSI adapter (see the following section) typically relieves the CPU of much disk I/O processing. A sound card might include a DSP (Digital Signal Processor) chip to off-load audio processing from the CPU. Such products are more expensive, but the benefits will be faster, smoother and more consistent playback.

SCSI and IDE considerations

While SCSI based hard drives, CD-ROM drives and removable media drives (for example,. SyQuest® ezflyer™ or IOmega® Zip™) are more expensive than their IDE counterparts, SCSI offers several significant advantages. First, SCSI is a widely accepted and highly compatible standard in the personal computer industry. It is a more flexible and useful interface. For example, not only is SCSI used for storage media (for example, hard drives), but a significant number of image scanners and high-end printers also use a SCSI interface. Second, SCSI does not significantly increase the burden on the CPU during intense disk activity (such as playback of an animation or performance of a Scala wipe/transition). This results in smoother and faster

performance. Third, you can attach up to seven devices to one SCSI controller. Fourth, SCSI offers the fastest performance with the appropriate SCSI controller card and hard drive(s).

SCSI does have its costs, however. First, you typically have to purchase a separate SCSI controller, which takes up a card slot in your system. Second, Real-mode 16-bit MS-DOS device drivers for the SCSI controller may need to be loaded into memory (for DOS compatibility), leaving less conventional memory for the operating system and applications.

IDE's advantage is that it is significantly less expensive, typically 10 to 25% less than a similarly equipped SCSI system. Also, with the recent Enhanced IDE/Fast ATA-2 specification, information is transferred almost as quickly as a SCSI-2 device. Typically, no extra slot is required for a controller, as the IDE connector is on the motherboard or on the Multi-I/O controller card, and there are typically no drivers to install. However, there is a significant increased burden on the CPU during intense activity, which may result in less smooth and slower performance. Another disadvantage is that you can only attach up to two devices with IDE and up to four devices with Dual-channel Enhanced IDE. If you decide to configure your system with SCSI, we recommend that you get a controller card that will take advantage of the fastest system bus slot available (i.e. PCI or VLB).

Audio Cards

MIDI Playback Considerations
Support of MIDI audio playback in MM200 can be accomplished only by using a Microsoft® Windows MCI compatible FM-synthesis driver or a Roland® MPU-401 AT interface compatible wavetable-synthesis audio card (considered to have more realistic sounding musical instrumentation than FM-synthesis). Examples of popular wavetable-synthesis devices include the Creative Labs® Sound Blaster™ 32, AWE32™, and AWE64™, and daughterboards such as the Roland SoundCanvas™ SCD-15/SCB-55 and Yamaha® DB50XG™.

Some sound cards, like the Creative Labs Sound Blaster 16, include a connector that allows you to attach an MPU-401 AT compatible wavetable-synthesis daughterboard. Popularly called the Wave Blaster™ connector, it was named after the first wavetable-synthesis module offered by Creative Labs, the Wave Blaster I.

A number of manufacturers now make Wave Blaster compatible daughterboards. Some of the manufacturers are makers of professional electronic keyboards and synthesizers, including Yamaha, Roland, Ensoniq®, E-mu®, Kurzweil®, Korg® and others.

Not all wavetable-synthesis cards or daughterboards sound the same. Careful evaluation of these products will help you determine which is best for your applications and needs.

Video Cards

Graphic Display Card Considerations

MM200 requires a Microsoft DirectX DirectDraw compatible SVGA display card. To determine which video cards offer the best performance, look at the results of performance tests (for example, the Ziff-Davis® Labs WinBench™ benchmarks), as reviewed in computer magazines. Test results are sometimes published by manufacturers, to help compare their product with their competitors.

If your multimedia productions require the use of photo-realistic images (i.e. 24-bit - millions of colors) used in a high-speed, high-impact nature (i.e. quick transitions of photo-realistic images, animations and digital video like Video for Windows - AVI), then look for SVGA display cards that offer 32-bit "True Color" capabilities. The Matrox® Millenium™ and ATI® Mach64™ are two such cards that have 32-bit True Color capabilities.

MPEG Decoders

Hardware or Software Based MPEG Decoding Options

The initial release of MM200 works only with certain Scala compatible MPEG decoder cards. They are:

- Sigma Designs® - REALMagic™ Ultra

- Sigma Designs - REALMagic Maxima

Support for more MPEG decoder cards and ActiveMovie supported hardware may be available at a later date. Please visit the Scala web site at http://www.scala.com for more information.

Otherwise, MPEG decoding can be done via software, using Microsoft's ActiveMovie.

Scan Converters

Output to Television Considerations

There are a number of "VGA/SVGA to composite encoder" or "scan converter" products on the market, which take the output of a computer's graphics card and convert it to the NTSC or PAL video standards. Typically, the less-expensive products offer only consumer quality video. More expensive units offer industrial quality or even broadcast quality (RS-170A NTSC or CCIR-601 PAL) output.

Scala products will work with most of these encoders, but be aware that some encoders display high-speed wipes/transitions and digital video better than others. Other encoders may have limited color-depth capabilities (up to 8-bit/256 colors) or may not be able to switch to the proper refresh-rate for the video signal (i.e. 50 Hz for PAL and 60 Hz for NTSC). Careful evaluation of these products will help you determine which is best for your applications and needs.

Manufacturers include AITech International®, Vine Micro® (distributed in the US by TVOne® Multimedia Solutions), Extron Electronics®, PC Video Conversions®, Communication Specialties®, ADS® and others.

Another type of encoder, with additional features, is the video-overlay device, sometimes known as a "genlock". A genlock not only encodes the VGA or SVGA signals to NTSC or PAL, but also allows the mixing of computer graphics on top of an incoming video signal (such as from a VCR). Most genlocks require computer control, as some are internal ISA cards that go into one of the system slots. If you want to use a genlock, check the Scala Web site (http://www.scala.com) to see if a Scala EX module (driver) is available to control that make and model you are considering.

Manufacturers include Vine Micro (distributed in the US by TVOne Multimedia Solutions), Communication Specialties, PowerPixel Technologies® and others.

Hard Drives

Hard Drive Considerations
Because multimedia is a data-intensive process, we recommend using a high-rotational speed, low-access time hard drive. We also recommend using an "A/V rated" hard drive.

An "A/V rated" hard drive is designed to offer consistent performance during the long reads and writes that are required by multimedia applications. During operation, many hard drives periodically has to stop reading or writing data to perform what is known as a "thermal recalibration". This helps ensure that the mechanisms within the hard drive are aligned properly. Unfortunately, the interruption caused by thermal recalibration can have a noticeable effect on multimedia applications, especially on playback of AVI or MPEG video. For example, if the computer is playing an MPEG video and a recalibration occurs, it can cause the MPEG video to freeze or skip frames. A/V rated hard drives have more sophisticated electronics that prevent thermal recalibration from occurring during playback or recording of data.

Most if not all of today's hard drives come with a internal cache. This cache is designed to store the most recent and most often accessed information on the hard drive. In multimedia applications, the cache is also designed to "buffer" data to/from the hard drive and the computer system, preventing freezes, skipped frames or loss of data while recording audio and/or video. Many A/V rated drives have 512 or 1024 KB caches (vs the 128 KB or 256 KB caches in typical hard drives).

If you are considering upgrading your hard drive, you may want to refer to some of the computer or multimedia related magazines that review and evaluate computer hardware. These magazines usually include feature articles that review a group of hard drives and their suitability to a specific

application. Pay particular attention to not only how fast the drives are, but how consistently and reliably they transfer data.

CD-ROMs

CD-ROM considerations
Many of today's multimedia computers come equipped with "quad-speed" (4X) or faster (6X to 16X) CD-ROM drives. However, their performance varies greatly from manufacturer to manufacturer. In some cases, performance varies from model to model, even among those that are rated at the same speed.

Like hard drives, in relation to multimedia, check to see how consistently and reliably your system's CD-ROM transfers data, especially playback of animations, MPEG video (.MPG files) or sampled audio (.WAV files). These characteristics are more important than raw speed. Like hard drives, CD-ROM drives also usually have a cache to improve performance, and a larger cache will give you better multimedia performance. Again, consider these characteristics if you plan on upgrading your CD-ROM drive.

Laptop, Notebook and Portable Computers
Laptop and notebook computers (portables) have come a long way. Indeed, many of today's portables are specifically designed or configured for multimedia. These multimedia portables are in most cases well suited for use with Scala products. Things to look for:

CPU
A 90 MHz or faster Pentium or equivalent CPU is recommended. Some of the newer notebooks now offer Pentium CPUs with speeds up to 200 MHz.

VESA Video Local Bus (VLB) or PCI VGA Display Subsystem
These subsystems offer the fastest graphics and are at least twice as fast as a standard portable's VGA display subsystem.

We recommend using a portable that offers at least 1 MB of video memory. Most multimedia portables sold today have at least 1 MB of video memory standard. Some have 2 MB, especially high-speed/high-performance Pentium based portables.

Secondary Cache
Many of today's portables now include a secondary cache. Look for a system that has at least a 16 KB primary cache on the CPU (for example a 486-class CPU) and/or has an external Secondary (L2) cache. A 256 KB L2 cache is preferable on high-speed (100 MHz) Pentium or equivalent portables.

CD-ROM
Double speed (2X) is standard for portables with CD-ROM, and is usable in most situations, but a quad-speed or faster drive is preferable. In relation to multimedia, check to see how consistently and reliably your system's CD-ROM transfer data. These are more important factors than speed.

Hard Drive
Portables that feature removable drives are recommended. This allows you to have a separate hard drive that contains your presentation and another containing your general business software and files. This helps prevents mishaps like accidental erasures. A large capacity hard drive is recommended (800 MB or more).

LCD Display
Active Matrix (TFT) is preferable over Dual-Scan (DS) color LCD displays. TFT is more expensive, but offers a substantially clearer display, especially when moving graphics or video is involved.

Audio
Many of today's multimedia portables include Sound Blaster compatible audio. Make sure that the audio hardware is fully DirectX DirectSound compatible.

Some high-end multimedia portables offer MIDI wavetable-synthesis. Check to make sure that the included drivers are fully Windows MCI compatible.

MPEG
Note that, due to the proprietary hardware used on some portables, there is no guarantee that Scala's MPEG EX will work with your particular system's Microsoft ActiveMovie compliant MPEG hardware and/or drivers. You should check the Scala web site at http://www.scala.com to see if there is a special EX available to support MPEG on your portable system.

Miscellaneous

Electrical considerations
An often overlooked option in a system configuration is the electrical supply. Computer hardware, like most electronic devices, for that matter, is much more sensitive to electrical anomalies than appliances like a toaster, for example. Electrical disturbances like spikes, surges and "brown-outs" can damage expensive computer parts and cause loss of data.

At the very least, include a computer-grade surge protector in the setup. These devices will prevent most spikes and surges from reaching your equipment. Many also include Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) filtering. These filters prevent data from being corrupted or lost due to interference from other electrical devices on the same circuit (such as hair dryers, refrigerators, washing machines, etc.).

Brown-outs happen when the voltage in the electric outlet or circuit falls below the standard output, (dropping to 80 volts on a 110-volt system, for example). These drops in electrical output can make lights dim or flicker (thus the name "brown-out") and could cause your computer to reboot, crash or hang. For such situations, or a total loss of electrical power, an Uninterruptable Power Supply (UPS) is an excellent investment.

A UPS is essentially a heavy-duty battery together with circuitry that can sense any loss of power from the outlet, and switch to supplying power from the battery, with no interruption. It outputs "clean" electrical power at all times. It prevents all the other dangerous electrical anomalies from getting to the computer system, including brown-outs.

Keep in mind that a surge protector alone will not prevent data loss from a brown-out! Even with a complete loss of power, however, the computer system with a UPS can continue to operate normally long enough for you to save files and shut down the system safely.

Until recently, UPS units were fairly expensive, but now you can go to your local computer store and find them for as low as $99 USD. Be sure to select a UPS with the appropriate capacity for your computer setup, and note how long the UPS can supply its rated power level before its battery runs down.

Archiving considerations

Since multimedia applications require large amounts of storage space, archiving or "backing up" of data is an important task. In addition, the need to archive forces you to organize information by project, client, subject, etc.

There are various kinds of back-up devices, which use removable media. Examples include streaming tape (such as Travan™, QIC or DAT), removable disks (such as IOmega Zip/Jaz™ or SyQuest ezflyer/syJet™), and optical media (such as recordable CD-ROM CD-R, Magneto-Optical, or Amorphous Phase-Change media). Which of these devices is best for your use depends on how much information needs to be stored and how quickly the information needs to be accessed. Magneto-Optical devices are fast and offer high-capacity, (up to 4.3 GB), but tend to be expensive. Streaming tape DAT offers very high storage capacity, (4-8 GB), but it requires that the information on the tape be "restored" to a disk drive before it can be accessed directly. Relatively inexpensive devices such as IOmega's Jaz or SyQuest's syJet drives can store 1 GB or more per cartridge and are almost as fast as standard hard drives and no restoration to another storage device is required.

Scala's Internet World Wide Web (WWW) Resource Guide

(Revised February 1997)

Software Companies:
Microsoft - http://www.microsoft.com

Adobe - http://www.adobe.com

CPU Manufacturers:
AMD - http://www.amd.com

Cyrix - http://www.cyrix.com

IBM - http://www.ibm.com

Intel - http://www.intel.com

Texas Instruments - http://www.ti.com

Sound Card/Daughterboard Manufacturers:
Creative Labs - http://www.creaf.com

Ensoniq - http://www.ensoniq.com

Yamaha - http://yamahaxg.ysba.com

SVGA Display Card Manufacturers:
Matrox - http://www.matrox.com

ATI - http://www.ati.com

MPEG Decoder Card Manufacturer:
Sigma Designs - http://www.sigmadesigns.com

Scan Converter and Genlock Manufacturers:
ADS - http://www.adstech.com

AITech - http://www.aitech.com

Communication Specialties - http://www.commspecial.com

Extron - http://www.extron.com

PC Video Conversions - http://www.pcvideo.com

PowerPixel Technologies - http://www.powerpixel.com

Vine Micro (TVOne) - http://www.tvone.com

Removable Media Drive Manufacturers:
IOmega - http://www.iomega.com

SyQuest - http://www.syquest.com

THE SCALA® MULTIMEDIA MM200™ FAQ (FREQUENTLY ASKED QUESTIONS)

Revised February 1997

Installation

Question: I have an IBM® Thinkpad™ notebook computer with Windows 95™ installed. I installed DirectX™3 and ActiveMovie™ from Microsoft®. MM200 won't start. Why?

Answer: As of this writing, IBM has released DirectX2 DirectDraw™ drivers for certain models in their line of Thinkpad notebook computers. Therefore, you will need to reinstall DirectX2 in order for MM200 to work with those models.

We regret this inconvenience, but addressing this matter is IBM's responsibility. We suggest contacting IBM's consumer affairs division, encouraging them to release DirectX3 drivers for your Thinkpad as soon as possible. Or visit their web site at http://www.ibm.com for more information on the availability of DirectX drivers for your computer.

Question: I have an IBM desktop computer that uses IBM's mWave™ technology for sound (i.e. WAV and MIDI playback) and telephony (modem/fax/answering system). I've installed DirectX and ActiveMovie, but I can't get any sound from MM200. What's wrong?

Answer: As of this writing, IBM has not released DirectX DirectSound™ drivers for their mWave sound/telephony technology. We regret this inconvenience, but this is the responsibility of IBM. We suggest contacting their consumer affairs division, asking them to release DirectX DirectSound drivers for their mWave technology, as soon as possible. To be sure, check their web site at http://www.ibm.com for late breaking news on DirectX drivers for your computer.

Note: CD-Audio playback (with CD-ROM drive) is possible without DirectX DirectSound drivers installed.

Question: What's the difference between DirectX certified drivers and drivers that don't have certification?

Answer: Hardware manufacturers submit DirectX drivers for certification by Microsoft. Microsoft in turn, runs these drivers through an array of tests to make sure they conform to their DirectX standards. These tests can take weeks or even months to complete. For that reason, the hardware manufacturers may release, or ship with product, drivers that are not certified by Microsoft.

Please keep in mind that nothing may be wrong with the manufacturer's DirectX drivers. It may simply be that the drivers were shipped before

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Microsoft could certify them. Or the manufacturer has updated the drivers to dramatically improve performance. However, if you want to be on the "safe side", be sure to use only Microsoft certified DirectX drivers. The certified drivers for your card may be available on the manufacturer's web site or at Microsoft's web site at http://www.microsoft.com.

Question: How can I tell which versions of the DirectX drivers are installed or if they are certified?

Answer: Do the following:

1. Click on Windows Start button, then highlight Settings, then click on Control Panel. The Control Panel window should appear.

2. Double-click on Add/Remove Programs. The Add/Remove Programs Properties window should appear.

3. Double-click on DirectX Drivers. The DirectX Setup window should appear.

4. The DirectX Setup Window shows what DirectX components have been installed, the versions of the drivers and whether the drivers have been Microsoft certified.

If any of the DirectX components have a statement that says "no hardware support", then the installed Windows 95 driver does not support or does not fully support DirectX. Contact your network administrator, dealer/vendor or computer manufacturer for assistance. Or contact them via electronic mail or visit their web site for information. You may also visit Scala's web site at http://www.scala.com or Microsoft at http://www.microsoft.com for links to your manufacturer's web site, if available.

Question: Which DirectX component (driver) controls what in my computer?

Answer:

DirectDraw - SVGA Display Card (e.g. Matrox® Millenium™, ATI mach64™)

Display driver - The actual Windows 95 or Windows NT 4.0 SVGA display driver that supports DirectDraw

Direct3D™ - 3D Routines* in a 3D enhanced SVGA Display Card (e.g. Matrox Mystique™, VideoLogic® GrafixStar™ 450)

DirectSound™ - Sound Card (e.g. Creative Labs® Sound Blaster™ 16, Turtle Beach® Tropez™ Plus 32 Voice)

Sound driver - The actual Windows 95 or Windows NT™ 4.0 SVGA display driver that supports DirectSound

DirectPlay™ - Modem, ISDN Card or Adapter, Ethernet Card (e.g. USRobotics® Sportster™, Hayes® Optima™ modems or 3Com® Etherlink-III™ Ethernet, Intel EtherExpress™ ethernet cards)

Old DirectPlay - DirectX component for "legacy" components (e.g. 16-bit DOS or Windows 3.11 peripherals)

DirectInput™ - Mouse or other Pointing Device (e.g. Microsoft Mouse, Logitech® MouseMan™)

*3D routines are not used or supported in MM200.

If any of the DirectX components have a statement that says "no hardware support", then the installed Windows 95 driver does not support or does not fully support DirectX. Contact your network administrator, dealer/vendor or computer manufacturer for assistance. Or contact them via electronic mail or visit their web site for information. You may also visit Scala's web site at http://www.scala.com or Microsoft at http://www.microsoft.com for links to your manufacturer's web site, if available.

Question: Does MM200 support Intel's MMX™ technology?

Answer: Under certain conditions, yes. For example, MM200 uses MMX to smooth (antialias) text more quickly. This is especially noticeable when typing text with the *Smooth* option on.

It should be noted that all programs (running under Windows 95, Windows NT 4.0 and even MS-DOS™) will benefit in a significant increase in performance (10-20%), due to the larger 32 KB internal Level One (L1) cache and other optimizations in the MMX enhanced Intel® Pentium® P55C and P54CTB processors. Indeed, if Microsoft releases a newer version of ActiveMovie with MMX support, then MM200 would indirectly benefit from this.

We will consider other direct Intel MMX enhancements to our software products in the near future.

For more information about Intel's MMX technology, visit their MMX technology web site at http://www.mmx.com. For information about ActiveMovie, visit Microsoft's web site at http://www.microsoft.com.

Creating or Editing Scripts

Question: Why do I get screens with incorrect colors randomly when running scripts or authoring?

Answer: There is a problem with certain DirectX DirectDraw display drivers in the support for palette-mapped screens. If both your desktop and Scala are in 256 color (8-bit) mode, it is possible for other applications to change the palette for currently drawn objects on Scala's DirectDraw display screen.

Because this is an error in the driver there is no way to address this problem without MM200 having to redraw the entire display screen.

Please note this problem can occur only when both Scala and your desktop are running in 256 color mode. If you encounter this problem, changing

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either mode (e.g. changing MM200's *Menu Resolution* color depth to High Color) will eliminate a re-occurrence of the problem.

Question: How do I type a bullet-point?

Answer: The Control (Ctrl) key + the Period (.) key.(Use the period on the main keyboard, not the numeric keypad).

Question: A text/clip won't let me re-order it in Design List. Why?

Answer: Check if that element has a wipe or not. If it doesn't have a wipe selected, it means that the element will be on the screen when the background itself wipes in. Therefore, it must be present before any element that does have a wipe. If you did intend to move the element, you must first give it a wipe ("Cut" is sufficient).

Question: How do I remove Out wipes?

Answer: Go to the Design List menu and you will see the out-wipes listed as "Out: <eventname>." You can cut or delete them from there.

Question: I can't get the wipe I've chosen to move in a certain direction. Why?

Answer: Certain wipes have limited wipe directions. For example, some can only go North/South but not East/West. Some experimentation may be required to find which wipes work best. No table or listing of wipes with possible wipe directions is available at this time.

Question: I'm using a Zoom or Push wipe on an element (text, clipart, animclip). As it wipes in, the element gets cropped. Is there a way to fix this?

Answer: Yes. From the **Edit** menu, highlight the element and then go to the **Styles** menu. Scroll down (or up) until you see the *Border Width* and *Border Height* options. Increase the values (in pixels) and then click *Preview*. Adjust until the cropping is eliminated.

Question: I don't understand how buttons work. Can you briefly tell me how?

Answer: Here is a brief description (but not a substitute for the manual). Buttons are created from text or clips. Text-based buttons have the advantage of being able to tie the text with a graphic backdrop as one element. Clip-based buttons cannot have any text in them (unless you put a text element on top).

Text button backdrops are currently limited to normal clips that "show through" behind the text, or special "presets" created by Scala. The Scala presets are stretchable to the size of the text. All buttons have three states of appearance - normal, highlighted, and selected (clicked). Any attribute such as shadow, color, italics, etc. can be changed on each state. To make this easy, the Design menus will indicate when you are editing a button, and at what state you are currently looking. Press F-12 to cycle through the states.

Question: When I preview pages that display or use variables, they don't always show up and I sometimes get errors. Why?

Answer: Due to the fact that variables are initialized only when you Run the script, and whether the variables you are using are dependent on other pages, *Preview* may have problems with variables.

Question: I set the volume for a sound to half way and I can't hear it at all. Why and how can I fix this?

Answer: The sensitivity of most sound cards varies. Most cards don't have a smooth (linear) volume level. You will have to experiment to find where appropriate points are for desired levels.

Question: I used a 44 kHz .WAV file in my script, but the sound quality is poor. Why is this?

Answer: Some sound cards are only capable of playing back at 22 kHz stereo and 44.1 kHz mono. MM200's Sound EX attempts to "parse" the sound file, in real-time, for playback at 22 kHz. This is not always successful and may result in unusual playback characteristics. If possible, we suggest re-recording the audio clip at a lower sampling rate (e.g. 22 kHz). Refer to your sound card's manual for the recording/playback capabilities before re-recording.

Question: I want to play a sound while a page is on the screen. How?

Answer: You can do this from the Design List menu. It has Sound and other EX columns similar to the Main menu.

Question: How do I make sounds and animation synchronize with each other?

Answer: Scala's design currently doesn't have the strict synchronization of a "time-line" based program. You can start a sound and an animation on the same page, but they may not always sync. We will be working to improve this in the future.

In the meantime, we suggest combining the animation and audio into an AVI or QuickTime™ video clip, using any of the available digital video editors like Adobe's *Premiere*™.

Question: My script disappeared. How do I get it back? (or, It was replaced by a single page named after my script).

Answer: You have discovered one of two features: If the number on the script title bar (right side) doesn't read "1", then you have used the Script Switcher feature which lets you edit more than one script at a time. Click on the left arrow to get back to your original script. If your script was "replaced" by a single page with the name of the script, you have discovered an upper level to scripts designed for advanced users. Just double click on the

page to get back to your script. Both of these features are covered in the manual.

Question: The "Shuffler" sometimes shows the wrong images. How can I update them?

Answer: Scala saves shuffler icons from the File menu in temporary files (.NFO) so they display more quickly when viewed again. If you change a graphic file, you will have to "visit" that file with the File menu to update the icon.

Performance

Question: I have a "64-bit" SVGA display card with 1 MB of display RAM installed. The performance of MM200 is terrible. What can I do to fix this? Do I need another display card?

Answer: If your SVGA display card is based on any of the newer SVGA chipsets, getting a new card may not be necessary. In most cases, adding an additional 1 MB (or more) of display memory to the display card, will improve performance dramatically. This is due to the fact that cards with only 1 MB of display memory work in 32-bit access mode. In essence, your card may be working at half its potential performance capability. Adding 1 MB or more of display memory will allow your card to run in full 64-bit mode. Another benefit to adding more memory is that you will have access to more colors (e.g. 24-bit or millions of colors), at higher resolutions (e.g. 800x600) and refresh rates (e.g. 72 Hz).

If you are not familiar with installing chips in your computer, we recommend that you allow only qualified personnel (such as your vendor) to do this for you.

Another possibility is that your card (or its driver) may not fully support Microsoft's DirectX DirectDraw. You can visit the web page of the manufacturer of the VGA display card or of your computer to obtain a driver that is compatible with DirectDraw. A poor or bad driver (especially ones that are not Microsoft "certified") may cause your system to crash or lock up. It is therefore very important to have the correct drivers installed.

Microsoft has a special page on their web site for updated drivers at http://www.microsoft.com/msdownload. You may also visit Microsoft's homepage at http://www.microsoft.com or Scala's homepage at http://www.scala.com for more information on DirectX. Otherwise, contact your network administrator, dealer, manufacturer of the display card or computer, for more information.

Again, you must have Windows 95 or Windows NT 4.0 and both DirectX™ and ActiveMovie™ properly installed on your PC in order to use Scala MultiMedia MM200. MM200 cannot run on Microsoft Windows 3.11 or Windows NT 3.51.

Question: Do you recommend using disk compression utilities like Stac Electronics® Stacker™ or even DriveSpace™ included with Microsoft Windows 95?

Answer: If it all possible, no. Disk compression utilities, even at minimum compression settings, can affect performance of MM200 significantly, especially on "low-powered" systems (i.e. 75 MHz Pentium or slower). Disk compression utilities will have less of an impact on faster systems, such as a Pentium 133 MHz. But even with these systems, minimum compression settings should be used.

Question: Do you recommend "optimizing" or "defragmenting" the hard drive for faster performance?

Answer: Yes. Depending on how fragmented the files are on your system's hard drive, defragmenting can increase performance significantly. However, before defragmenting the hard drive, be sure to make a complete backup of the data on your hard drive or storage device (i.e. Tape-Backup, SyQuest® ezflyer™/syJet™, Iomega® Zip™/Jaz™) Never, under any circumstances, defragment the hard drive until you have made a complete backup! Otherwise, you risk losing ALL of your data if something should go wrong during the defragmentation process.

Question: My computer is connected to a scan converter and out to a television. I'm using backgrounds that have different resolutions and different color-depths (e.g. 640x480 and 800x600 with 8-bit and 24-bit images). I see a "glitch" on screen or a wipe that I've assigned in the script does not work. What's happening?

Answer: Since you are using backgrounds that have different resolutions, the computer must switch to a different video mode in order to display the graphics properly. Not only does the SVGA have to make the switch, but so does the scan converter. Sometimes there is a momentary blank or an on-screen "glitch" as the scan converter switches to the new mode. To avoid this, we suggest that you use screens or backgrounds with the same resolution and color-depth, throughout the script. Or simply set the Play Resolution option in the Tools menu to a specific resolution and color-depth that is compatible with your scan converter.

Sometimes, you won't see a blank screen or glitch, but just a scrambled screen. The most likely cause of this is that the scan converter you are using is not capable of displaying at the resolution you requested. Some scan converters have limited operating modes. For example, many can display at 640x480, but not 800x600 or higher. Please consult the owners manual for the scan converter to see which modes are supported.

Certain wipes won't work between two different background sizes (e.g. 640x480 8-bit image wiping to an 800x600 24-bit image) or at certain color-depths (e.g. Fade wipes will not work in 16-bit or 24-bit modes). Try to

keep image sizes and color-depths uniform throughout the script in order to avoid these problems.

Question: I have a number of FLC/FLI animations along with playback of WAV sound samples. Sometimes the animation stops, stutters and/or the audio cuts out. What can I do to prevent this?

Answer: Your system may have the following conditions:

- Low powered CPU (i.e. 75 MHz Pentium or slower).

- Too little memory (e.g. 16 MB)

- Badly fragmented hard disk or slow access storage device (e.g. double-speed (2X) CD-ROM drive).

- Inefficient sound card (e.g. relies on CPU to process audio effects like reverb).

- Audio file used has high sample rate (e.g. 16-bit, stereo, 44.1 kHz)

Suggestions to remedy the situation:

- Increase the amount of RAM on system. If many of your productions include a number of animations and high-quality sound, then consider adding more RAM (e.g. 16 or 32 MB). Today's memory chip prices make it more affordable than ever.

- Try re-recording or using another .WAV file that uses a lower sampling rate (8-bit, stereo, 22.1 kHz, ADPCM compressed).

- If the music or sound is available on CD audio, try playing it back directly from the CD-ROM.

- If using a lot of animations and sampled audio, consider separating the audio and animations on to two different hard drives. This configuration may allow for faster loading and performance.

- If at all possible, do not "compress" the hard drive using Stacker, DriveSpace or some other hard drive compression utility. If compression is needed, use minimal compression settings or if possible, store all elements (i.e. backgrounds, sounds, clip art, etc.) on another uncompressed hard drive or storage device.

- Back up and defragment your hard drive on a regular basis, especially if you add and delete files often.

- Add a faster CPU (e.g. Intel OverDrive™ CPU upgrade).

- Upgrade to faster "A/V Rated" hard drive or storage device.

Question: I get a lot of "noise" or a strange "whine" from the output of my sound card during playback. What can I do to minimize it?

Answer: The audio circuitry on your sound card is amplifying Radio Frequency (RF) interference, which is generated by the computer system or any of the cards next to the sound card itself.

Following are tips on how you can minimize or eliminate the RF interference:

- Try setting all of Scala's "Mixer" volume settings, with the exception of the "Master" volume, to their minimum gain (volume setting). The MM200 Mixer defaults with the "Mic" and "Line" inputs at their minimum volume setting.

- Only increase gain to those peripherals that you are going to use (e.g. volume setting for playback of an audio CD). Once finished with using the peripheral in the script, be sure to set up an event to return the gain to the minimum setting(s).

- Move the sound card to another slot, away from all the other cards in the system. Keep the VGA display card the furthest from the sound card. VGA display cards are often the "noisiest" peripherals in a system.

- The cable from the CD-ROM drive to the sound card is not shielded well and may act as an antenna, attracting RF interference, which you hear as noise from your speakers. If possible, move the cable away from the other cards in the system.

- If CD audio playback is still too noisy (at any gain level set in MM200's "Mixer" or CD audio "Volume" level), replace the cable with a new high-quality, well-shielded cable.

- If all else fails, you may need to buy a sound card that has better RF interference shielding.

Question: I'm using an MPEG decoder card and when I play back the clip, I can see the video, but can't hear the audio. What do I do?

Answer: Try the following suggestions:

- Be sure that the audio cable connected to the MPEG decoder card "line-out" jack is connected to the "line-in" jack and NOT the "speaker out" or "microphone" jack of the sound card.

- Check that speakers (self-powered) are connected to the MPEG decoder card's "line-out" jack. If you do not have self-powered speakers, the "line-out" jack of the MPEG decoder card will NOT power the speakers. Try the solution mentioned above.

- Check the Line input of the "mixer" setting, in the Sound menu, to make sure that there the audio level is set properly. The default setting for the Line input is at minimum level.

- Check to make sure that the sound card and/or the MPEG card has been properly configured to work with Scala. Remember, your sound card must be DirectX DirectSound compatible and must have its drivers installed. Your MPEG decoder card must be ActiveMovie compatible. Like the sound card, be sure the ActiveMovie driver that came with your MPEG decoder card is installed.

- Visit the manufacturer's web sites for information on DirectX DirectSound or ActiveMovie or contact your network administrator, dealer or manufacturer of your computer for information. You may visit Scala's web site at http://www.scala.com for links to your manufacturer's web site, if available.

- Check the cables connecting between the sound card and MPEG card and out to the speakers.

- Check to make sure that the MPEG file you are using in the script has sound. For example, if you are using the MPEG files that we have included on our CD-ROM, they don't have sound.

- Consult the manual that came with your MPEG decoder card and/or the sound card for additional information on how to use these two peripherals together.

Question: When the script is playing back through the video encoder, I noticed that the colors aren't accurate or are washed out or cause strange behavior on the TV screen. Why?

Answer: The color values for a computer display are different from those of a television signal (i.e. NTSC or PAL). Indeed, computer color values have a wider range and intensity than television.

Another possibility is that your video encoder may have poor "motion compensation" capabilities. That is, you can see graphics have strange "wavy" movements or "jerky" movements on the television, but this is not visible on the computer monitor. Some of this can be addressed by using the various levels of "flicker reduction" circuitry on the scan converter (please consult the scan converter's manual for information). If this doesn't help, you may have to find another scan converter that has better motion compensation capabilities.

Question: I'm using MM200 in 8-bit (256 color) playback mode for maximum performance. I notice that in using Scala's backgrounds, the color transitions from one page to another are smoother than with backgrounds that I have created or obtained elsewhere. Why is this?

Many of the included Scala backgrounds use fewer colors than the available 256. Some use as little as 16 colors. The more colors available between elements (i.e. backgrounds and clips), the more smooth the color transition.

A number of image processing programs, like Adobe® *Photoshop*™, include features that allow you to reduce the number of colors used in an image. If you have an image processing program, check the manual to see how you can use this feature.

Also, you can switch to a different color-depth like High Color (thousands of colors). This will eliminate the color transitions at the cost of slower wipe performance and/or some wipes may not be available (e.g. Fades).

Question: I'm using JPEG images and playing back in the 8-bit (256-color) mode for maximum performance. I notice they take longer to display than other image formats. Also, I notice that the images appear to be more "grainy". Why is this and what can I do to compensate for it?

Answer: JPEG has the advantage of having a 24-bit palette and a small file size, due to its high compression format. However, there are disadvantages to using JPEG files in Scala. One, the computer must work harder and longer to decompress the image for display. Second, the 24-bit palette of the JPEG image has to be converted to 8-bit (256 colors). All of this takes time to do.

To compensate for the graininess of the image, load all the elements you plan to use in a particular event, then go to the Design Palette menu and click the Optimize button. This tells Scala to re-examine the color palettes of all the images on screen and remap them accordingly. This should reduce the grainy appearance (but may not eliminate it).

If you feel that the use of JPEG images is slowing the performance of your script, then we suggest converting the JPEG files to another format like 8-bit (256 colors) Windows BMP format or GIF. These image formats may have larger file sizes, but they can be loaded and displayed more quickly. Otherwise, you may want to switch to a higher color-depth (i.e. High Color - thousands of colors or True Color - millions of colors).

Question: I "published" a script and gave a copy to my friend/colleague to try out. His/her computer played the script faster (or slower) than mine. Why?

Answer: MM200 is designed to run as fast as possible on the system it operates from. Performance is based on a combination of factors including hardware and software configurations (e.g. make and model of computer, video display card, memory, hard drives, software drivers, etc.).

MM200 does not "equalize" the performance on all machines. This can be good and bad. It's good because if you want to create high-impact, high-energy presentations with the "hottest" system around, MM200 will take advantage of its performance capabilities. It's bad, if the script you designed for a high-performance system runs on a low-performance system. The timing may be off or the wipes perform too slowly or the sound/music doesn't sound as good.

A good "rule-of-thumb" is if you intend to let anyone play your scripts, test them with the least common denominator (i.e. the slowest possible system that can run the MM200 run-time player). This may mean that you have to tailor the scripts with more conservative wipes (e.g. Reveals rather than Zooms) and music recorded at a lower sampling rate (e.g. 8-bit 22 kHz Mono rather than 16-bit 44.1 kHz Stereo).

Miscellaneous

Question: Scala isn't working the way I want it. Can you help me?

Answer: We can help you insofar as assisting you with a specific feature in MM200. But if you are seeking information on how to edit/create graphics, sound, AVI or QuickTime™ (MOV) video clips, etc., you can get help on the Internet. One of the best sources of information is the Usenet newsgroups, specifically the comp.multimedia newsgroup.

The greatest benefit to joining a newsgroup is that you can "meet" other Scala users, multimedia designers and developers, industry experts and others new to multimedia. You can share ideas, solutions, applications and other information. We'll be there to help too, if needed. Consult with an Internet provider (e.g. America Online®) for information on how to get your computer hooked up to the Internet.

Don't overlook the benefits of your local community college or university. Many offer credit and non-credit courses on how to use the more popular graphics and digital video products available (e.g. Adobe *Photoshop* and Adobe *Premiere*™). Who knows, they may even offer a course with Scala software as part of the curriculum! If they don't, let us know and we'll send them an information kit promptly!

Even if the college or university doesn't offer computer graphics related courses, you can still benefit from the basic "Graphic Design" course.

Technical support is also available on CompuServe®. The Scala forum is located in the Multimedia Vendor B (GO MULTIB) area, Section 8. In addition to the benefits of a newsgroup, as described above, joining CompuServe will allow you access to the Scala file library, where you can find example scripts made by other Scala users, plus access to updates to the Scala software.

From time to time, Scala will hold "live" discussions on the IRC (Internet Relay Chat), on CompuServe and other electronic discussion forums. You may need special software to join the IRC discussions. CompuServe already includes "chat/discussion" functions with their software. Please visit the Scala web site (http://www.scala.com) on a regular basis to find out when these discussions will be held.

Question: There's a mistake in your manual or help screen. Who can I yell at to get it fixed?

Answer: Thanks! Please tell us where the mistake is by eMailing us at support.mm@us.scala.com or support.mm@no.scala.com and we will correct it in the next release.

Question: Who made your demo scripts?

Answer: Most of our scripts are created internally, although some are done by outside companies who use Scala® products as part of their day-to-day business.

Who knows, maybe your masterpiece script could be included in the next release! We're always interested in what people are doing with our software. So please contact us and show us what you've got!

We are considering an association with external companies and professional groups who specialize in creating products with Scala software. If your group or company is interested in joining a network of "Scala Studios", please contact us.

Question: This FAQ has been very useful. Are there any updates?

Answer: The FAQs listed here and many more, are available on the Scala web site at http://www.scala.com. The FAQs on the web site are updated on a regular basis and new ones are added when needed. Indeed, if you have a good FAQ candidate, submit it to support.mm@us.scala.com (North America) or support.mm@no.scala.com (elsewhere in the world). We're also interested in tips, techniques and suggestions that we can share with other Scala users.

FYI - If you have technical questions about your computer that are not directly related to MM200, you can access additional FAQs at these web sites*:

Microsoft's DirectX Games FAQ

>   http://www.microsoft.com/mediadev/directxqa.htm

The PC Video Hardware FAQ

>   http://www.heartlab.rri.uwo.ca/vidfaq/videofaq.html

System Optimization Information:

>   http://www.sysopt.com

Other useful sites for information:
Frank Coldron's World O'Windows

>   http://207.18.181.161/windows/index.html

You can also find FAQs on the Usenet newsgroups. The primary source is comp.answers.

Also, don't forget that you can use the many Web search engines to find FAQs and other information. Below are some of the more popular search engines:

AltaVista™

    http://www.altavista.com

HotBot™

    http://www.hotbot.com

Infoseek™

    http://www.infoseek.com

Lycos™

    http://www.lycos.com

Webcrawler™

    http://www.webcrawler.com

Yahoo™

http://www.yahoo.com

*Due to the changing nature of the World Wide Web, the web site addresses may have changed. Visit Scala's web site at http://www.scala.com for updated links, if any, to these web sites.

Legal Stuff

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