

***THANK YOU FOR CHOOSING  
MAXI STUDIO ISIS***

***VIELEN DANK, DAß SIE SICH  
FÜR MAXI STUDIO ISIS  
ENTSCHIEDEN HABEN***

***GRACIAS POR ELEGIR MAXI  
STUDIO ISIS***

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# English

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In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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The test report for this audio translator was made in accordance with the procedures given in ANSI C63-4-1992 and the energy emitted by this equipment was passed for both radiated and conducted emission class B limits.

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## English

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## FOREWORD

*Discover the ultimate Interactive Sound Integration System: Maxi Studio ISIS, the 8-input/4-output hardware full-duplex multi-channel direct-to-disk audio and MIDI Home Recording Studio with a revolutionary rack-mountable audio interface.*

Maxi Studio ISIS, the finest card that sound technology has to offer, is built around the RISC-based Dream DSP, offering you the highest quality MIDI and digitized sound reproduction. But that's only the icing on the cake. Each stage of conception, development and production at Guillemot has been concentrated on your needs and desires, with the result that the Maxi Studio series really does cater for everyone. Whether you're a budding musician trying out your wings or a fully-fledged maestro, Maxi Studio ISIS will represent a real feather in your cap.

With 4MB RAM (extendable to 36MB) on-board and its high-tech multi-layer stereo sampler, you will be amazed at the sound quality of this card when reproducing MIDI compositions. The top-of-the-range General MIDI and General Standard compatible synthesizer chip uses wavetable technology. The built-in sampler/synthesizer comes complete with 128 General MIDI instruments, 97 variation instruments and 128 MT 32 instruments together with the GM drum kit (61 sounds), 7 special kits (82 sounds), 1 SFX kit (46 sounds) and the MT 32 kit (67 sounds).

ISIS is a full-featured, state-of-the-art, standalone solution with its external rack of outstanding quality (connected via an external bracket daughterboard) for ultimate flexibility and optimum interference shielding. The rack is equipped for ¼" jack connectors for the 8 inputs/4 outputs and both gilt co-axial (available on the majority of DAT) and optical (mini-discs, DAT and some CD-players/recorders) connectors for S/PDIF input/output. The external 20-bit DAC/ADC converters ensure perfect audio fidelity and an exceptional S/NR.

There are four different master clocks available on ISIS (32, 44.1, 48kHz and S/PDIF), allowing you to record sources with the best possible quality whilst avoiding software interpolation which can modify the initial analog signal. What's more, ISIS offers full multi-channel compatibility with all the leading software, and the comprehensive software suite included in the pack contains all the tools necessary from recording to mastering.

In view of the fact that Guillemot has already paved the way of true realism to get the ultimate immersive 3D audio experience (quadraphonic support for surround sound in 1996 and DirectSound 3D hardware acceleration) the prowess of the gaming configuration has but increased.

Maxi Studio ISIS provides an unparalleled gaming experience with a whole range of real-time effects to be applied to your sounds such as reverb, chorus, echo and pitch-shifting, together with a paragraphic equalizer with 4 output bands and positional 3D interactive surround sound. All the elements required to boost your gameplay into another dimension are present with you as the central link. Just choose from one of over 250 predefined settings for the latest best-selling games or create your own favorites and customize your own 360° sound environment. You can even enjoy high quality General MIDI sounds in Windows DOS box applications.

Don't forget that Guillemot Corporation places an entire range of complementary products at your fingertips. Check out our video/graphics line because otherwise you won't believe your eyes. Try out our accessories range to make your universe complete and create a multimedia environment that will surpass your wildest dreams.

**The Guillemot team**

## INTRODUCTION

### *USING THIS MANUAL*

To begin with, this manual assumes you are familiar with frequently used terms, such as click on, right-click on and double-click on.

Further to this, the following list of conventions has been drawn up to help you get situated:

- **BOLD CAPITALS** for all directory, file and path names, and also all text that you will have to manually type in (e.g. **INSTALL.EXE**).
- *Italics* for interface messages or on-screen information.
- Keyboard keys in square brackets, with a plus sign separating keys that you have to press simultaneously (e.g. Press [Ctrl]+[Alt]+[Del]).



- Designates a caution or warning that can steer you away from risky situations.



- Offers you an on-the-spot definition or explanation.



- Indicates information of particular importance that should be taken into consideration before proceeding.



All software must be installed from the installation CD-ROM. The CD-ROM drive letter is **D:** by default, but if different, replace **D:** with the drive letter used on your computer.

### ***SOFTWARE SUPPLIED***

- Windows 95 & 98 drivers
- Maxi Studio ISIS software suite (Gamer FX, Media Station, Instrument Manager, Soundbank Manager, Console 8/4)
- Emagic Logic Audio Pro ISIS
- Cool Edit Pro SE
- Acid DJ
- MusicMatch Jukebox 4.4
- Liquid Player 5.0
- Demos (Cubase VST, Cakewalk, Mixman Studio, Rayman 2...)

Please refer to the respective software publishers for technical support concerning each of the included DEMO software applications.

### ***ONLINE DOCUMENTATION***

This manual deals principally with

- Maxi Studio ISIS driver and software installation
- Getting Started

The CD-ROM (***VOLUME I***) included in this package contains all the online manuals appertaining to the different software applications supplied with Maxi Studio ISIS. Additional, updated information and any eventual modifications made to the present documentation may be provided in **README.TXT** files and **ADOBE ACROBAT.PDF** files (Portable Document Files). As drivers are always evolving, some information contained in this manual may prove inadequate compared with the latest driver versions.

## GETTING INSTALLED

### ***DRIVER INSTALLATION***

The following section deals with installation of the drivers for the Maxi Studio ISIS. The card is entirely Plug and Play. If other cards have been described as Plug and 'Pray', rest assured, with the Maxi Studio ISIS there's really nothing to worry about. On the extremely rare occasions there is a problem it's usually due to an older, non Plug and Play card already installed in the PC.

The following steps enunciate the procedure to install the drivers of your new card.

1. Once your Maxi Studio ISIS board has been correctly installed, you may switch your PC back on. The Plug and Play configuration of the board means that Windows will automatically detect its presence and display a *New Hardware Found* dialog box informing you that the system has found a *PCI Multimedia Audio Device*. Click on *Next*.
2. Insert the CD-ROM at the Windows prompt and click on *Next*.
3. Windows will then inform you that the Maxi Studio ISIS drivers have been located and will prompt you to click on *Finish* to complete the installation.



### *Media Station:*

If you wish to associate all your Wave, MIDI and CD-Audio files to *Media Station* (virtual hi-fi player) that you are about to install, check the boxes in the *Media Station/Select File Options* dialog box. You may also enable the autorun facility linking *Media Station* to your CD-ROM drive by checking this option. Insertion of an audio CD in your CD-ROM drive will automatically launch *Media Station* and CD playback.



### *Acrobat Reader:*

Acrobat Reader will be necessary to read and print the online manuals for some of these software applications. You can access these manuals with a double-click. Simply click on *Start/Programs/Maxi Studio ISIS manuals*.

## **SOFTWARE INSTALLATION**

Setup will prompt you to install the software applications accompanying Maxi Studio ISIS. Simply click on the software application that you wish to install and follow the on-screen instructions.



Click on the exit icon in the top right-hand corner of the installation dialog box to exit Setup.



**If you are unsure about the underlying concept of soundbanks and how they work, Appendix A contains all the necessary information. Reading this section is therefore strongly advisable.**

## HITTING THE RIGHT NOTE

The title of this section seemed very apt, not only for the play on words but also because the decision on how to go about describing what follows was not made lightly. In fact, this section aims to give you a clear overview of all the functions of the software and how to get the most out of it. The key word is simplicity as we explore step-by-step all the stages necessary to create your own music.

The advantage of this approach is twofold, making the procedure attractive and accessible to absolute beginners while at the same time providing rapid references for more experienced users.

Fully detailed explanations of the more technical aspects for advanced musicians are developed in the online software manuals and are directly referenced from this manual. A complete guide to the architecture of your equipment is also dealt with online in the hardware manual.

## *INTRODUCING THE SOFTWARE*

This manual introduces several of the applications that are included with Maxi Studio ISIS and their complementary functions. Since the main function of your soundcard is to manage various different music sources and then generate MIDI music, let's start by exploring the different sources of music available on your computer.

- The first source is MIDI "music". In fact, MIDI contains a series of performance commands, instructions on what music to play rather than the music itself. MIDI is to some extent a language of musical components which, when correctly programmed, allows you to make MIDI format compositions. To play MIDI you need a synthesizer (an electronic chip which produces music), a sequencer

(software which sends the MIDI commands to the synthesizer) and a MIDI file (a special format file written by yourself or a musician and which contains all the MIDI commands). Note that the sequencer also allows you to compose a piece by generating the relevant MIDI file.

- The second music source is the CD-ROM drive. As well as reading CD-ROMs, this drive also reads audio CDs (that is, the ones you play on your hi-fi CD player). Of course, all other media drives will also read audio CDs, such as DVD-drives, CD-R and CD-RW drives.
- Wave files are the third music source. These are standard digital audio files containing sampled sound. Wave files require a lot of storage space on your hard disk and a great deal of RAM memory while in use. You should be particularly mindful of available disk space when recording or reformatting a file. If the available system resources are inadequate whilst you are editing, you run the risk of data loss or crashing the system.
- Finally, you can listen to music or sounds from a microphone or from your hi-fi. To do this, connect the music source to your card's Microphone or Line-In input. Alternatively, plug into the Maxi Studio ISIS rack and play your own instruments. This is the fourth music source.

### ***Maxi Studio ISIS software applications***

The aim of the following table is to set out as clearly as possible the functions of the various different software applications included with Maxi Studio ISIS.

Inevitably, this table cannot provide an exhaustive description of the huge range of tasks that may be accomplished by your soundcard, but will nevertheless clearly distinguish the overall functions available.



Guillemot reserves the right to modify without notice and without prejudice the list of software applications delivered with Maxi Studio ISIS.

NAME	DESCRIPTION
<b>Gamer FX</b>	List of ready-to-use real-time effects presets for over 200 of the latest best-selling games and creation of personalized effects settings. (Reverb, chorus, echo, pitch-shifting, 4-band paragraphic equalizer, 3D positional surround sound).
<b>Media Station</b>	Multi-function graphical stereo player interface with mixing panel, Wave file player/recorder, MIDI player and CD-Audio player.
<b>Cool Edit Pro SE</b>	Audio Editor. Professional 10-track 32-bit digital recording, editing and mixing application with Find beats, Zoom, Wave loops, SMPTE slave, Multiple undo support, etc. Audio editing in conjunction with audio/MIDI sequencer.
<b>Instrument Manager</b>	Transformation of pre-recorded samples into instruments (or modification of existing instruments) under the General MIDI standard (i.e. compatible with Maxi Studio ISIS sampler/synthesizer).
<b>Soundbank Manager</b>	Compilation of personalized soundbanks of instruments (created using <i>Instrument Manager</i> ). Downloading of soundbanks into memory. Visualization and testing of downloaded soundbanks and their respective available instruments.
<b>Console 8/4</b>	User-configurable mixing console for rack input/output control. (Volume level adjustment, simultaneous monitoring of inputs to outputs, synchronization clocks).
<b>Emagic: Logic Audio Pro ISIS</b>	Professional digital multi-channel audio/MIDI sequencer with extra customized features for song/music writing (recording, mixing, editing, effects, etc.) and mixdown to single stereo Wave file. 4 active buses, 4 inserts & 3 EQ per track allow for 11 real-time effects for each of the 16 stereo tracks. Supports DirectX Plug-Ins (on separate CD).
<b>Acid DJ</b>	Easy loop-based music production tool. Automatic matching of loop tempo and pitch. Add your own vocals & mix techno, industrial, acid jazz... Includes over 600 royalty-free grooves.
<b>MusicMatch Jukebox 4.4</b>	Recording time as much as halved for MP3 and Windows Media. Add streamed music videos to your collection. The recent NetMusic feature provides excellent audio and video recommendations from our growing list of top-rank online music partners.
<b>Liquid Player 5.0</b>	Play any Liquid Track or MP3, download and arrange thousands of tracks, burn CDs with a simple click and lots more...
<b>Mixman Studio for Media Farm Box.</b>	(Demo)* Create professional quality music simply and quickly on your PC and then share it with others by exporting to MP3, putting it on the Web or making your own CDs. Patented automatic beat matching makes audio experimentation fast and fun, irrespective of the musical style chosen.
<b>Rayman 2</b>	(Demo)* New Rayman 2, The Great Escape. Dive into a world of action-packed adventure!
<b>Steinberg software</b>	(Demos)* Cubase Score VST, Wavelab, Rebirth and others (on separate CD).
<b>Cakewalk software</b>	(Demos)* Cakewalk Audio Pro 8.0, Professional 7 and others (on separate CD).
* For technical support on the included demo software applications, please refer to the respective software publisher.	



The *Gamer FX* application is inaccessible in *Console 8/4 Mode* and inversely, the *Console 8/4* application is inaccessible in *Multimedia Mode*.

### ***Maxi Studio ISIS Configuration***

The first essential point to remember is the fact that the soundcard's architecture is based around two entirely separate chips that are nonetheless sequentially linked for certain functions: a Codec mixer (Maestro 2) and a Digital Signal Processor (Dream 9707).

The second essential point is that, depending on the currently selected configuration (*Console 8/4 Mode* or *Multimedia Mode*), the available functions to be executed by the two chips will no longer be the same.

*Console 8/4 Mode* covers the musical configuration whilst *Multimedia Mode* covers the gaming configuration. It should therefore be noted that certain software applications and functions available in one mode will not be available in the other and vice versa.

There must be absolutely no audio applications connected to the Digital Signal Processor when switching from one mode to another. Switching necessitates reconfiguration of the Digital Signal Processor.

To access and modify the currently selected configuration, simply click on the Maxi Studio ISIS icon that figures in the Windows taskbar, click on *Configuration* at the top of the list and select the corresponding entry.



It should also be noted that *Media Station* is equipped with a mixer that may be used to control Codec sources.



The section on Hardware Architecture in the online Hardware manual describes each of the two chips in further detail, explaining the mixers to be used to control the different sources.

For general distinction, the sources routed through the Codec (Maestro) should be controlled using the Windows *Volume Control* panel. The sources processed by the Digital Signal Processor may also be controlled by the Windows *Volume Control* panel, but the *Console 8/4* application, especially conceived by Guillemot Research and Development, is designed to greatly facilitate your maneuvers in this domain.

The following sections deal separately with the main functions that may be carried out by Maxi Studio ISIS.



Double-click on the taskbar icon to access the Maxi Studio ISIS program group directly.

### ***DIRECT TO DISK – CONSOLE 8/4***

This section deals primarily with the software application that will control the purely audio functions of the Maxi Studio ISIS rack and soundboard: Console 8/4. As previously explained, it is again stressed that in order to operate this application you must necessarily be in *Console 8/4 Mode* (this application being inaccessible in *Multimedia Mode*).

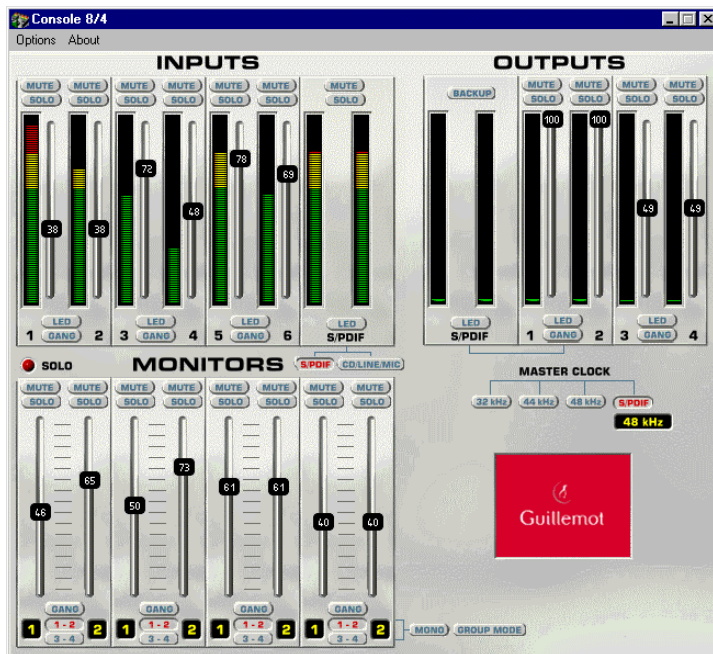
Using this compact interface, you can control the 8 input and 4 output levels, select synchronization clocks and adjust input monitoring.

Right-click on the *Maxi Studio ISIS* icon in the Windows taskbar and select *Console 8/4* in the pop-up menu to launch the program.

The graphic representation of the console regroups the functions into three sections: *INPUTS*, *OUTPUTS* and *MONITORS*. The Line-Ins and Line-Outs are then further grouped into pairs. Each of the channels is represented by a fader and is controlled by individual selection buttons, or buttons common to the pair.

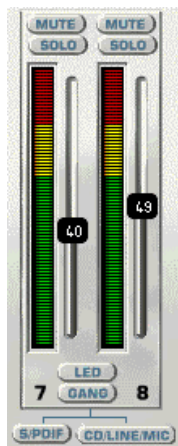
The level of the signal is displayed on the black button on each of the faders and the *Options* menu in the main menu bar allows you to modify the display mode.

Click on *Appearance* to select either a numerical display or a display in dB. Modification of the selection in the Options menu will alter each and every fader. Should you wish to alter the signal level displays individually, then right-click on the fader button in question.



## Inputs

The input controls are situated in the top left-hand corner of the interface, with each of the 8 inputs (divided into stereo pairs) being represented by faders for input attenuation.



The level meters are disabled until one or other of the ISIS ports have been opened and recording has been launched.

The *Options* menu allows you to alter the input levels of the sources you are recording. In effect the option *Input Level* offers two possibilities: either 0dB or +6dB. The selection of 0dB means that at maximum the signal restitution will be identical to the physical input, and consequently the signal will not be attenuated during recording. The +6dB option is actually a signal boost, and allows you to implement a maximum gain of 6dB, which is the equivalent to amplifying the signal by two.

The fader display levels will depend on which appearance has been selected (*Numeric* or *dB*). A numerical display will range from 0 to 100 regardless of whether you are in boost mode or not. In dB, the display ranges from 0dB to -80dB in 0db mode and +6dB to -80dB in boost mode.

If the source signal is already quite strong, beware of switching to +6dB mode because of the risk of signal saturation, especially since the mode you have selected will be memorized for the next time you launch the application.

Next to each of the faders is a level meter to monitor signal strength. The level meters can be enabled (red) or disabled (blue) in pairs using the *LED* button located underneath each of the faders. The colors used to represent the display vary from green to yellow to red, depending on the input signal. Stay out of the red as this means your signal is saturated!

Above each of the faders are two selection buttons, *MUTE* and *SOLO*, allowing you to either mute a particular input or work with a particular input in solo. These buttons also change from blue to red when enabled. It is possible to select more than one input in *SOLO*.

The *GANG* button underneath allows you to tie the two corresponding input faders together so that they maintain their respective placement in relation to one another. Inputs 7/8 have the particularity of additional *S/PDIF* and *CD/LINE/MIC* buttons beneath the faders.



When any one of the three possibilities are enabled in the graphical display for the inputs 7/8, the other two selections will automatically be disabled. For example, clicking on the button *CD/LINE/MIC* will enable the Codec input whilst excluding use of the S/PDIF and two mono analog inputs 7/8.

In effect, the console inputs 7/8 that accommodate the 7<sup>th</sup> and 8<sup>th</sup> mono, analog channels are also designed to accommodate the digital S/PDIF stereo input, together with the stereo input originating from the Codec (Maestro). Inputs from the Codec include all signals that enter via the CD/LINE/MIC inputs on the ISIS board's bracket. Since the conception of ISIS revolves around an 8-input/4-output basis then these three possibilities are ultimately mutually exclusive.

Click on the *S/PDIF* button to enable your digitized input. The S/PDIF-In has no volume controls so the input is identical to the original source (DAT, mini disc...) in *0dB* mode. It should be noted that when S/PDIF is enabled, the *MUTE* and *SOLO* buttons are not duplicated for each channel of the stereo input. The fact remains that these two channels may not be modified independently of each other. If you have not connected an S/PDIF source to the rack, it will be impossible to enable the S/PDIF input (the same is also true for the S/PDIF synchronization clock).

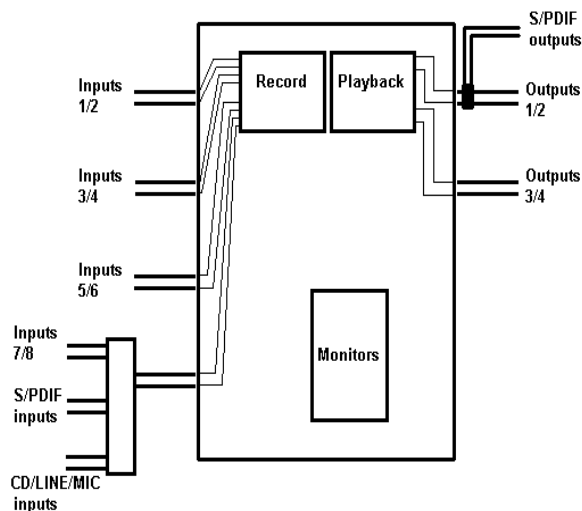
Click on the *CD/LINE/MIC* button to enable your inputs that pass via the Codec. The control buttons for this option are identical to those for the analog inputs, with the indications 7 and 8 being replaced by *L* and *R* (to differentiate between the left and right channels of your stereo Wave).

These two buttons are sufficient to operate the three options. Simply disable both of the selection buttons underneath the faders to access the analog inputs 7/8.

Although it is possible to record your Wave files while simultaneously listening to the input signals, it should nevertheless be stressed that these input controls ***will only have an effect on the recording levels***. There is no link whatsoever between the input and output controls. To alter the levels at which you wish to listen to your input signals, refer to the monitoring section.



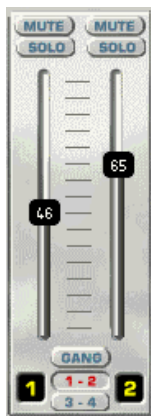
In the diagram the input controls will act upon the *Record* volumes and the output controls will act upon the *Playback* volumes of previously recorded Wave files. There is no link between the Record and Playback modules; the output controls cannot therefore be used to set the playback volume of what you are currently recording.



## Outputs

The top right-hand corner of the interface is dedicated to the 4 ISIS outputs controls, together with the S/PDIF-Out controls. The representation and controls are identical to the input controls, and as with the inputs, the S/PDIF output meter is not adjustable.

The S/PDIF meter is however, linked to the analog outputs 1/2 (this is indicated by the blue line underneath the outputs) and consequently the signals will be identical. Click on *BACKUP* to sever the link between the digital and analog outputs and automatically set the S/PDIF output to its maximum.

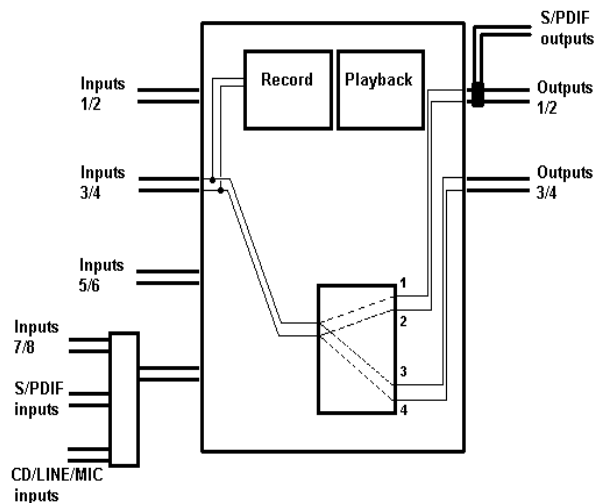


As the diagram indicates, the use of the monitoring controls allows a direct, simultaneous link between the inputs and the outputs, whilst the input signal is being recorded. And that's not all, you can alter the volume at which you listen to your input signals (via the monitor controls) without affecting the recording volumes!

Alternatively, set the volume manually using the controls for the analog outputs 1/2. The output controls apply to the *playback of pre-recorded Wave files*.

## Monitors

The input monitor controls are situated below the input channels. These controls allow you to monitor the record input signal via any of the available output channels. The monitoring controls have the same functions as the other sections (*MUTE*, *SOLO*, *GANG*...). The flashing light of the *SOLO* indicator in the top left-hand corner indicates the fact that at least one channel has been switched to *SOLO* mode. Each pair of output monitor controls corresponds to a pair of input controls.



When recording, the monitor controls allow you to set the levels at which the input signals will be monitored to each of the outputs, without altering the main Wave record/playback level controls. The monitor output signals to be chosen are situated underneath the GANG button for each pair of monitor controls (i.e. 1, 2, 3 and 4). The monitor controls correspond to the inputs directly above them, so that if you want to set the monitor for inputs 3/4, for example, all you have to do is select the monitor controls directly below inputs 3/4.

### ***Stereo monitoring configuration***

The stereo monitoring configuration operates on the basis that each pair of inputs represents a stereo signal (i.e. inputs 1, 3, 5 and 7 represent the *Left* channels and inputs 2, 4, 6 and 8 represent the *Right* channels). Consequently, the stereo monitoring configuration follows this pattern by dividing the possible output signals into two stereo pairs (i.e. 1-2 and 3-4). It is then just a matter of setting the level at which each input pair is to be monitored to each of the two stereo analog output pairs on ISIS.

For instance, for inputs 1/2, select the corresponding monitor control (always directly underneath) and click on the button 1-2. These monitor controls will display the currently selected levels at which inputs 1/2 are being monitored to outputs 1/2. Once you have done this, click on the button 3-4 to cause the monitor controls to display the currently selected levels at which inputs 1/2 are being monitored to outputs 3/4.

The *GROUP MODE* button to the extreme right of the monitor section, (at the same height as the output selections), allows you to automatically select either one of the ISIS output pairs. In this way, you will be able to view the monitor mix you have created for a particular pair of outputs and make adjustments easily.



All settings made will be stored in memory, so that each individual level for each output will be maintained even when you switch to another output pair. Furthermore, the output remains activated unless you click on the *MUTE/SOLO* buttons.

## English



There are two immediately noticeable alterations when you make the changeover to this configuration:

1. The *Group Mode* option is mutually exclusive (the button disappears).
2. There are now four individual buttons for output selection underneath the faders (instead of two buttons linking 1-2 and 3-4).



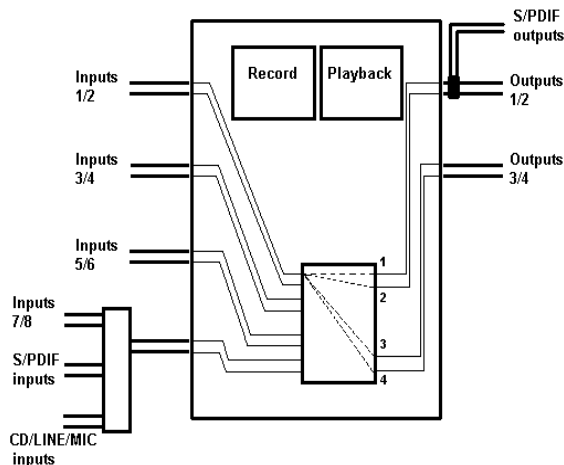
This diagram concentrates on the monitoring of input 1 only for the sake of simplicity. Nevertheless, each of the eight inputs may simultaneously and at varying output levels, be directed to each and all of the four outputs.

### ***Mono monitoring configuration***

The mono monitoring configuration goes much further than this principle, giving you the ultimate mastery of your equipment. From now on in, it is really possible to direct any input of your choice to any one of the analog outputs on ISIS.

First of all, to enable this function, click on the *MONO* button (this is situated to the right of the monitor output settings).

In exactly the same way as for the previous stereo configuration, select the monitor control that corresponds to the analog input (always directly underneath). Click on the button *1* to set the level at which you wish to monitor inputs 1/2 to output 1. Repeat this process with the other output buttons to direct your inputs to additional outputs or enable/disable the *MUTE* or *SOLO* buttons. The following diagram shows the result:





**IMPORTANT:** *make sure you do not unplug your S/PDIF sources while the S/PDIF clock is enabled.*

The same principles apply as with the stereo configuration. All settings made will be stored in memory, so that each individual level for each output will be maintained even when you switch to display another output, unless you click on the *MUTE* or *SOLO* buttons.

### ***Synchronization clocks***

Maxi Studio ISIS is capable of being synchronized to four individual synchronization clocks: 32kHz, 44.1kHz, 48kHz and S/PDIF. The three internal 32, 44.1 and 48kHz clocks are set in master mode and allow you to select the rate at which you digitize your recording or your playback, in conjunction with a wave editor.

The S/PDIF synchronization clock is, on the other hand, set in slave mode; which means that the rate at which the signal will be sampled will be faithfully adapted to the rate at which the source material was originally sampled. Ultimately, this means that your recording from any digital source will not suffer any data loss. In fact, the S/PDIF format has a synchronization clock signal embedded in the data stream, so that when Maxi Studio ISIS slaves to another digital audio product, ISIS will use that clock signal (provided the S/PDIF Master Clock has been enabled) and thus reproduce the signal perfectly. When you click on this option, the synchronization frequency of the S/PDIF signal will be displayed underneath the S/PDIF button.

If you have not yet connected your S/PDIF source to the Maxi Studio ISIS rack, you will not be able to enable this option. On the other hand, you will need to select the S/PDIF clock if you are recording from an S/PDIF port, as this is not done automatically. If your S/PDIF recordings contain pops, verify that this option has been selected.

## ***Assigning channels in DtD software***

The aim of this section is to explain briefly the system for selecting the various different Maxi Studio ISIS inputs and outputs.

### ***Logic Audio Pro ISIS***

For details on how to configure your inputs/outputs with Logic Audio Pro ISIS, the professional digital multi-channel audio/MIDI sequencer included with Maxi Studio ISIS, please refer to the manual *Introduction to Logic Audio Pro ISIS* included in the packaging. Details may be found in Chapter 4: *Mixdown with LA Pro ISIS (Inputs and Outputs)*.

Further details are included in the comprehensive online manual.

### ***Cool Edit Pro (Multitrack mode)***

In this mode, the input/output assignment is per track, which means you must set your own configuration and select your *Preferred Multitrack Devices*. To access the *Playback Device* window, click on either of the buttons marked by the numeral 1 to the left of the track you want to assign. Click on *Device List* to call up the list of *Preferred Multitrack Devices*.

- **Record:** Assign the *ISIS Analog Record* devices 1/2, 3/4 and 5/6 to the first, second and third fields, respectively. Since the analog inputs 7/8 and the S/PDIF inputs are mutually interchangeable, they use the same port, therefore assign this device to the fourth field.
- **Playback:** Use the same principle as for record. The analog outputs 1/2 and the S/PDIF outputs are linked and thus use the same port, therefore assign *ISIS 1/2 Analog/SPDIF Playback* to the first field and analog outputs 3/4 to the second field.

It is possible to assign a specific pair of inputs/outputs to a particular track. To do this, click anywhere in the square to the left of the track in question to access the *Track Info* window. Click on the arrows to select your inputs/outputs in the *Playback Device* and *Record Device* windows.

## ***SAMPLER/SYNTHESIZER***

This section explains how to generate MIDI sounds or instruments. This may be done whether you are in *Multimedia Mode* or *Console 8/4 Mode*.

Of course, you are able to download ready-made soundbanks directly into RAM. For details on how to do this, please refer to the following section D: *Using soundbanks (Downloading soundbanks)*.

Ready-made soundbanks may be downloaded from the CD-ROM or off the WEB.

You need to accomplish several stages before you can get around to actually playing music with your own samples. These stages can easily be summed up as follows:

- A. Creating a directory.** A new directory for your creations.
- B. Preparing your samples.** Creation of new samples or loading of existing samples. For this the sound source needs to be digitized and may be edited.
- C. Creating your MIDI instruments.** Conversion of samples into instruments that may be used by a sequencer.
- D. Using soundbanks.** In order to access your instruments, you need to compile them into specially formatted soundbanks. This section also deals with how to download existing or personalized soundbanks and provides details on memory exploration.

### ***A. Creating a directory...***

When you set out to create a soundbank, you must imperatively save all relevant **.WAV** or **.SMP** files, **.94i** files and **.94k** files in the same directory. (On the other hand, compiled soundbanks (**.94b** files) may be listed elsewhere).



**If you want to be able to manipulate your recordings before transforming them into MIDI instruments (loop creation, etc.), you will need to use the Audio Editing software, *Cool Edit Pro*.**

It is therefore a good idea to create a new directory with a sub-directory for each of your soundbanks as and when you create them. For our example, the path selected is **C:\ISIS\SOUNDBANK1**.

### ***B. Preparing your samples: Cool Edit Pro***

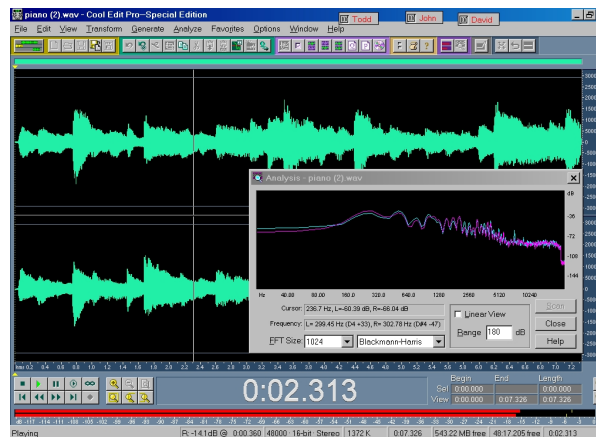
The notions and technique of digital recording and sampling are explored in detail in Appendix C. What concerns us here are the practical methods of creating a Wave file, the format (**.WAV** extension) necessary for creating your MIDI instruments. The way you sample your sound is ultimately a personal choice and may be accomplished using any one of a number of audio sources such as audio CD or a Line-In (analog or S/PDIF) on your rack.

To sample a sound, you may use *Cool Edit Pro SE*, the audio editing software included or *Media Station*, the stereo player interface supplied with Maxi Studio ISIS. You may, of course, use an external application if you prefer. If you're sampling an instrument, use a jack cable to plug the audio Line-Out of your instrument into one of the eight Line-Ins on the rack.

#### ***Cool Edit Pro SE***

Please refer to the online user manual for details on how to manipulate this software. The aim of this section is to explain briefly the system for selecting the various different Maxi Studio ISIS inputs and outputs.

## Stereo waveform



Click on *Options/Settings/Devices* to access the window, which will allow you to define either the *Waveform Playback Device* or the *Waveform Record device*. Select the Maxi Studio ISIS inputs and outputs you wish to use in each of the selection fields. The setting you choose will apply to all files that you work on while you are in stereo waveform mode.

Of course, nothing is stopping you from loading pre-sampled sounds from an external source and editing (looping, etc.) these sounds to create your instruments. Just copy the Wave files into the directory created in Step A.



The present section covers the functions which will allow you to become operational with *Instrument Manager*. For more details and definitions, and a full explanation of the advanced parameters of the digital processing modules, please refer to the *Instrument Manager* help file, which can be accessed from the main menu bar.

### ***C. Creating your MIDI instruments: Instrument Manager***

The soundcard is equipped with a synthesizer which uses a 4MB set of General MIDI samples by default. This soundbank is made up of high quality digital audio samples. With *Instrument Manager* you can transform the synthesizer into a sampler and thereby create your own instruments from the Wave files of your choice. You can then use those instruments, through the *Soundbank Manager* software, to create your own soundbanks. Finally, using your favorite audio MIDI sequencer (Logic Audio Pro ISIS, etc.) you can access the instruments using the usual MIDI messages; *Program Change* and *Bank Select*.

We strongly advise you not to use *Instrument Manager* while you are running another audio application. This is nevertheless possible as long as you do not modify any of the *Instrument Manager* parameters while the audio application is playing or recording a Wave file. While *Instrument Manager* is being used, samples are loaded directly into the memory of the sampler. You may increase available memory by adding a SIMM or simply by deleting, in *Soundbank Manager*, the GM bank *GSBK320* which is loaded by default.

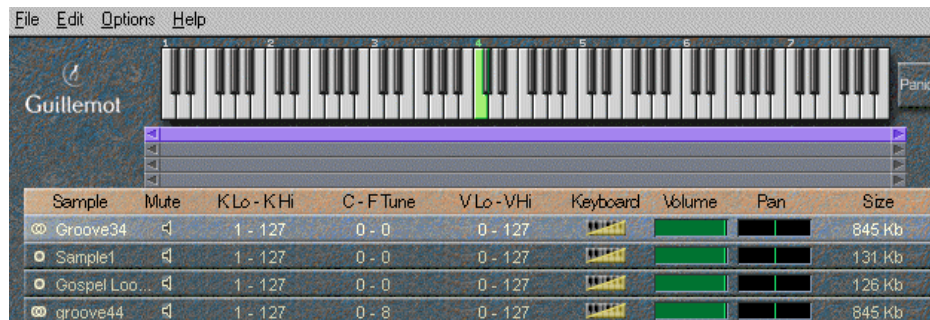
The software contains a user interface that graphically illustrates the synthesizer architecture that is used to transform a pre-recorded sample into an instrument. Launch the *Instrument Manager* software by right-clicking on the *Maxi Studio ISIS* taskbar icon and then choosing *Instrument Manager*.

To access *Instrument Manager*'s graphical interface, click on *File/New* in the menu bar and then load a sample into memory from the *Sample Pool* dialog box.



**Split.** To define an instrument along its entire scale, a synthesizer will make use of many samples, each of which defines a zone on the keyboard. Each of these samples, and therefore, each zone on the keyboard, can be configured differently in the synthesizer architecture. The sample, the corresponding keyboard zone and other parameters make up what is known as a split.

You can also open an existing instrument file, if you wish to modify certain parameters, by selecting *File/Open* in the *Instrument Manager* menu bar. For more details, see *Creating a new instrument* and *Modifying an existing instrument*.



Working from top to bottom, the screen consists of:

- A virtual keyboard ranging over 7 octaves with the sample (current split where more than one sample is loaded) reference note in green.
- A graphical representation (gray and mauve) of each loaded sample in the form of what is known as a split. Each split is colored gray with the exception of the 'current split' highlighted in mauve. The current split is quite simply the one you are currently working on.
- An overall view table detailing all samples currently loaded into memory, together with the most frequently edited parameters.

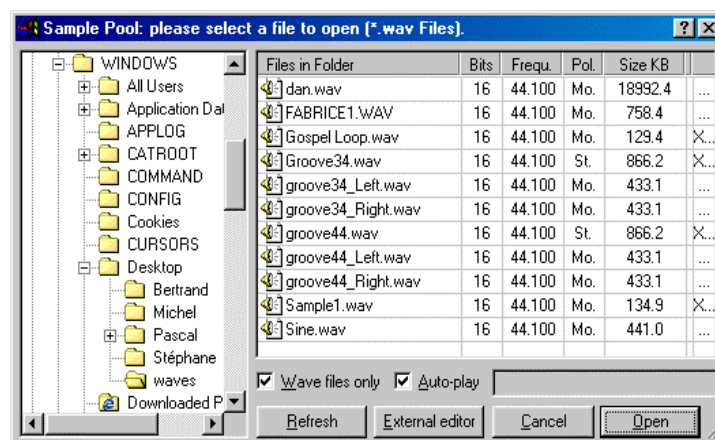
### Creating a new instrument

The creation of an instrument from a sample may be divided into a two-stage process:

1. Loading the sample
2. Editing a split

#### 1. Loading the sample

To create an instrument, once you have launched *Instrument Manager*, click on *New* and load a sample from the *Sample Pool* dialog box. The instrument is now made up of a single split which in turn contains a single sample. You can add other splits to the instrument by selecting *New Sample/Split*. You can also change the sample for the current split by choosing another sample in *Load Sample*. It is possible to select several splits simultaneously and load them into memory together. To do this, hold down the [Shift] button and select the required splits consecutively.



In the left-hand explorer, select your directory, giving you access to the folder containing your samples. When you click on this folder, the right-hand explorer will display your samples. (You can test each of your samples by enabling the *Auto-play* option before loading.)

To load a single key split with that note automatically defined as the reference note for this split, hold down [Ctrl] and click on the note in question on the virtual keyboard. This will open the *Sample Pool* dialog box. Select the file to be loaded and click on *Open*. The split will automatically be affected to the note selected.

Click on *External editor* to access other software to edit your samples. Click on *Refresh* to update any external directory or file change.

Click on *Open* to access the *Instrument Manager* interface and load the sample.

It is possible to configure the way in which files are loaded into memory by clicking on the *Options* menu in the main menu bar and selecting the *Preferences* option. By default, all *Sample info to import* options are enabled, allowing you to import the principal sample parameters defined in an external editor. *MIDI unity note* aligns middle C in *Instrument Manager* with middle C in the external editor. *Hide left / right files* refers to the left and right channels of a stereo file.

The *Virtual Keyboard MIDI Devices* tab allows you to choose the appropriate MIDI In and MIDI Out devices.

By clicking on the *Software* tab in the *Instrument Manager Preferences* dialog box, you can also modify various additional parameters. By enabling *Silent mode*, for example, you can edit files without loading them into RAM, and *MIDI notes format* allows you to fix a display mode for your MIDI notes.



A split is defined for a given keyboard zone and is made up of a sample and all the parameter values set for the sample in the synthesizer architecture.

When an instrument contains only one split, *the split corresponds to an instrument* or a **.94i** file. An instrument can also be defined by multiple samples. The *set of splits will then correspond to the instrument* and be defined in the **.94i** file.

## 2. Editing a split

Once a split has been created for your instrument you can edit the split and thus modify its default values.

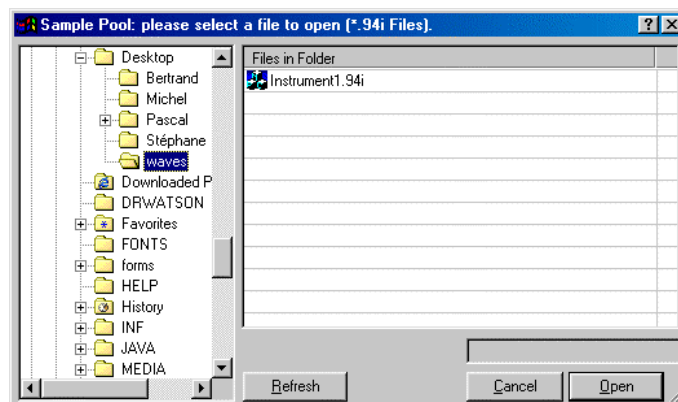
- The Overall View table allows you to display all the splits present for an instrument and to access the most frequently used parameters easily.
- Split View mode gives you access to more advanced parameters for each split.

### **Modifying an existing instrument**

To load an instrument that already exists in the **.94i** instrument definition format, click on *File* in the main menu bar. In the drop-down menu that appears, click on *Open....* Select the **.94i** format file to be modified and click on *Open*.

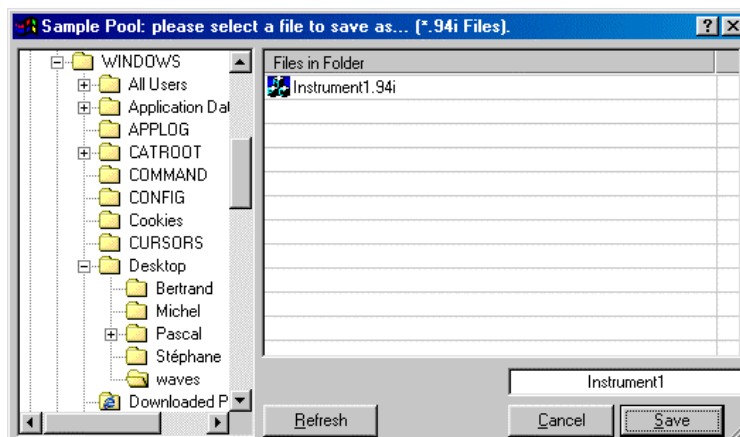
Please note:

When an instrument file is opened the samples used must be in the same directory as the instrument.



## *Saving an instrument*

When you are ready to save your instrument, quite simply click on *File* in the main menu bar and click on *Save file* or *Save file As...* to save the instrument under a new name.



Select the directory in the explorer where you wish to save your instruments and type in your chosen file name in the bottom right-hand entry box.

To repeat the process and create a new instrument, click on *File/New*.

Please note:

When an instrument file is opened the samples used must be in the same directory as the instrument.

### ***Virtual keyboard***

Once you have created a new instrument or loaded an existing **.94i** file, just click on the virtual keyboard to listen to it. Alternatively, connect an external master keyboard to test and configure your new instrument. To do this, connect the MIDI-Out from the keyboard to the MIDI-In on the soundboard. You may need to reconfigure the MIDI-In device depending on the equipment you have installed. To do this, you must access the *Options* menu in the main menu bar and select the *Preferences/Virtual Keyboard MIDI Devices* option.

The virtual keyboard allows you to test your instruments while you are working on them. Only those notes on the keyboard corresponding to a split definition will be active.

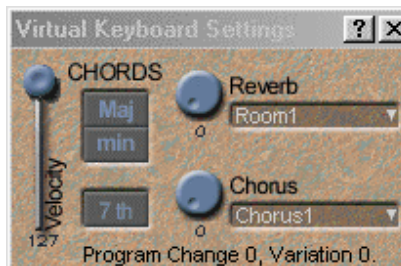
Left-click directly on a note to play it. Press [Ctrl]+[M] to create a split.

Right-click on a note to reposition the reference note for the current split. The reference note by default is C3 (or middle C). Changing the position of the reference note permits the repositioning on the keyboard of any note at its original sample pitch. To load a single key split with that key automatically defined as the reference note for this split, hold down [Ctrl] and click on the note in question on the virtual keyboard. This will open the *Sample Pool* dialog box. Select the file to be loaded and click on *Open*. The split will automatically be affected to the note selected.

The *Panic* button to the right of the virtual keyboard allows you to reset the MIDI controllers and notes. All pending sounds will be stopped.

### ***Virtual keyboard settings***

You can access the *Virtual Keyboard Settings* window through the *Options* menu in the *Instrument Manager* menu bar or by using [Ctrl] + [B].



## Velocity/chord arrangements

The *Velocity* slider simulates the effect of keyboard velocity on the virtual keyboard, allowing you to apply attack to a greater or lesser degree. 127 velocity provides the maximum level of attack. Typical chord arrangements are also available in this window (major, minor, 7<sup>th</sup>). On application, these chord arrangements will be transposed onto each of the notes you play on the virtual keyboard. Major and minor are mutually exclusive. Please note that these functions are not available while using an external keyboard.

## GM/GS effects

The software provides a preview of the chorus and reverb effects that may be applied to your instruments using the GM/GS effects processor. To test the effects on your instruments set the level of the effect you wish to apply using the rotary knob and select the type of effect in the scrolling listbox.

**The effects applied to instruments here will not be saved in the .94i sound definition file. To set effects that will be used to define the sound refer to Split View Mode.**

### ***Graphical split representation***

As previously explained, the samples loaded into *Instrument Manager* are represented by graphical bars showing the key range of the split in question.



Below this visual representation is a table giving an overall view of each of the loaded samples and their respective parameters.

Each split is represented by a separate bar. The current split is highlighted in mauve. All other splits loaded into memory are gray. You may change the current split by clicking on one of the other bars (the color changes will reflect the modification). Where the splits in memory can no longer be juxtaposed because the key ranges of the different splits are too great, they will be displayed over several lines. The keyboard ranges over 7 octaves (notes 24 to 107). By default, a new sample will have a key range from 0 to 127, thus occupying the entire key range of the virtual keyboard and more. Where the split exceeds the keyboard limits, this will be indicated by an arrow which appears at the extremity of the graphical split representation.

Please note:













Splits may be modified graphically within the 7 octave key range of the keyboard. Above and below these limits, modifications must be entered numerically (K Lo-K Hi) in the overall view table underneath.

You can change the split size by clicking on one end of the graphical bar and dragging the end to the desired position. Click anywhere on the split itself and slide it along with the mouse to move the entire split laterally. This is only possible where the key range of the split falls within the 7 octaves of the keyboard display. Right-click on a split to reduce it to a single note corresponding to the key situated above the right-click. White keys are represented by a wider bar than are black keys.

A second right-click will set the keyboard range of the split to the maximum value (0-127). Double-click on a split to display the advanced parameters of the selected split (Split View mode). This split is now current. Double-click a second time to go back to the Overall View.

The number of splits is limited only by the amount of available memory, but a maximum of four lines may be displayed at any one time. Where more splits are loaded in memory than *Instrument Manager* is capable of displaying, a scrollbar will appear to the left of the graphical split representation. Clicking on the arrows of the scrollbar allows you to reposition the current split in such a manner as to be able to view the splits above or below. Clicking on a sample in the overall view table will cause the graphical split representation to adjust itself automatically to display the selected sample.

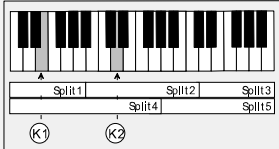
## Overall View parameters

Sample	Mute	K Lo - K Hi	C - F Tune	V Lo - V Hi	Keyboard	Volume	Pan	Size
⊞ Groove34	🔊	1 - 127	0 - 0	0 - 127				845 Kb
⊞ Sample1	🔊	1 - 127	0 - 0	0 - 127				131 Kb
⊞ Gospel Loo...	🔊	1 - 127	0 - 0	0 - 127				126 Kb
⊞ groove44	🔊	1 - 127	0 - 8	0 - 127				845 Kb

The Overall View table displays the different general parameters that concern each of the splits loaded into memory. Each parameter in this table may be modified. Click on the value to be modified, type in a new value in the box and strike [Enter]. Remember that certain modifications made to your instrument in the *Instrument Manager* interface may be made directly from a master keyboard. This option, valid for the modification of the keyboard range (K Lo – K Hi) and velocity (V Lo – V Hi) is particularly useful when creating drumkits.

Simply click on the first parameter to be modified and enter each of the following values via the keyboard directly. The entry box will switch to the following parameter automatically. Once you have clicked on a sample name, striking the space bar allows you to toggle between Overall View Mode and Split View Mode. Alternatively, double-clicking on a sample name will have the same effect.

Sample:	This column displays the name of the split loaded into memory. The icon to the left of the name designates whether the file is mono (single circle) or stereo (double circle). Clicking on the name of the file will make it the current split. Double-clicking on the name will launch Split View mode with all the advanced parameters for the split in question. This column remains visible when you are in Split View mode. Simply click on the sample name a second time to return to Overall View mode.
Mute:	Click on the loudspeaker symbol to mute a particular split. Click on the symbol a second time to restore sound. Right-click on the loudspeaker symbol to play it in solo (i.e. mute all other splits loaded into memory). This action will turn the selected split into the current split. Double-click on any loudspeaker icon to restore sound to all samples loaded in memory.
K Lo-K Hi:	(Low keyboard range value & high keyboard range value). These parameters set the keyboard range. Click on a value to access the entry box and enter the desired key note (from 0 to 127). These numerical values correspond to the graphical split representations above. Click on the K Lo-K Hi column header to change the type of keyboard range display (numerical values, Do-Re-Mi, etc. or notational values, A#, etc.). The values can also be edited using an external keyboard.

C-F Tune:	<p>(Coarse &amp; Fine Tune). These numerical parameters serve to define the note in two ways:</p> <p>C Tune: With a range from -32 to +31, this parameter defines the number of half tones used in transposing the base sample (range 1 unit for 1½ tones).</p> <p>F Tune: Ranging from 0 to 127 in standard keyboard mode, this parameter allows for precise tuning of the sample (range 127 units for 1½ tones). In fixed keyboard mode the range is from 0 to 31.</p> <p>These values may be entered by the numerical pad on your computer keyboard only.</p>
V Lo-V Hi:	<p>Key velocity (Low velocity range value &amp; high velocity range value). These inputs allow you to specify the range of velocities for playing the instrument. These parameters are especially significant when you use multiple splits layered one on top of the other to define a note. The synthesizer's structure is multi-layered, which means that splits can be layered in such a way as to define a note by using several different samples. The values can also be edited using an external keyboard.</p>  <p>The above diagram demonstrates how splits function. The note played on key K1 will be defined by the sample of <i>Split 1</i> and <i>Split 4</i>. The note played on key K2 will be defined by the sample of <i>Split 2</i> and <i>Split 4</i>. This is what is known as a multi-layer structure. The number of splits is limited only by the amount of available memory.</p>

Keyboard:	This parameter indicates the type of keyboard assigned to the sample. There are three different possibilities (standard, fixed and keyboard 1). Clicking on the icon allows you to toggle between the different possibilities.
Volume:	This parameter indicates the sample sound volume. Click on the Volume column header to toggle between two different types of display, the first numerical (computer keyboard entry only) and the second graphical (left-click on the display to set volume to a desired level and right-click on the display to increase volume to maximum level).
Pan:	This parameter sets the balance between left and right channels. Click on the Pan column header to toggle between two different types of display, the first numerical (computer keyboard entry only where a negative value will direct sound to the left channel) and the second graphical (left-click on the display to reposition balance to a desired level and right-click on the display to move the sound to the center).
Size:	This parameter denotes the size of the sampled file to the nearest KB.

## ***Multiple split selection***

If your instrument contains more than one split, then it is often practical to be able to modify common parameters simultaneously. It is possible to select several splits simultaneously for multiple split editing. There are different ways to do this.

- Press and hold down [Ctrl] and then click on each of the splits to be selected in turn. The splits selected for global editing along with the current split which remains light gray are highlighted in blue.
- Press and hold down [Shift] and then click on the first or last split to be selected. All splits between this one and the current split will be selected for simultaneous editing.

Any further modifications to what is the current split will then be automatically applied globally to all selected splits.

## ***Split view mode***

The general parameters of the sound you have loaded are displayed in the main *Instrument Manager* window. Double-click on the name of your sound to access Split View mode and the eight principal modules of advanced parameters: Wave generator module, smp amplitude module, filter module, out amplitude module, low frequency oscillator module, velocity module, envelope generator module and keyboard tracking tables. Once you have clicked on the sample name the space bar also serves to toggle between Overall View mode and Split View mode.

These parameters serve to modulate the sample amplitude, saturation, timbre, resonance and output levels of the current split. The 4 digital processing modules (Wave generator, smp amplitude, filter and out amplitude) may be commanded by 4 types of sub-modules (velocity, envelope generators, low frequency oscillators and keyboard tracking tables). When a sub-module sends a message to modulate one of the parameters of the 4 modules, the value of this parameter will no longer be fixed, but will vary over time, key range or velocity range.

The following tables will help you find your way around Split View mode by referring to our shape and color codes.

Color	Function
Yellow	Tuning. The yellow options in the EG, LFO and keyboard table sub-modules can be used to alter the tuning parameters.
Orange	Sample amplitude. The velocity sub-module and keyboard tables can be used to affect the sample amplitude.
Red	Cut-off. Affected by the velocity, EG, LFO and keyboard table sub-modules.
Purple	Resonance. Can be altered with the velocity sub-module.
Blue	Volume. As for cut-off, affected by the velocity, EG, LFO and keyboard table sub-modules.
Pink	Keyboard 1. Used to alter, directly or indirectly, depending on the key pressed, all parameters other than filter resonance.
Mauve	Keyboard 2. See keyboard 1.
Green	Waveform, frequency and delay parameters for LFOs.

Shape	Function
Circle	General Parameter
Wave	Low frequency oscillator
Square	Envelope generator
Rectangle	Velocity

It should be noted that a particular module or sub-module must be enabled for the different parameters corresponding to it to be effective. Where this is not the case, the parameter in question is graphically marked by a zero to denote the fact that that value will not be applied. For example, if the LFO amount is set to zero the parameters related to the LFO will be marked zero because the LFO is not active.





If you have not already done so, you should now read attentively Appendix A explaining soundbanks.

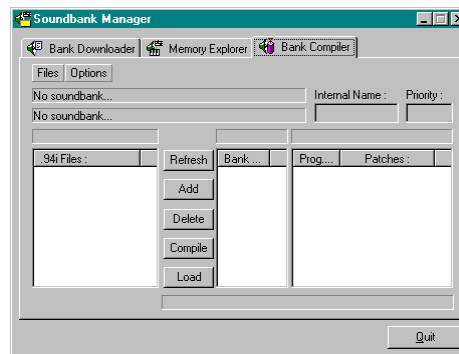
### D. Using soundbanks: Soundbank Manager

We're getting there! The next step is to create your soundbanks if you want to use your instruments (made with *Instrument Manager*) in your compositions. *Soundbank Manager* allows you to organize your **.94i** files into banks of sounds that you can then use in a MIDI sequencer.

This is essentially a two-stage process:

1. The soundbank must first be created or, if it already exists, edited (**.94k** file).
2. Once created/edited, the soundbank must be compiled into a format that may be downloaded into the soundcard's RAM (**.94b** file).

In order to achieve these two steps, first launch *Soundbank Manager* by clicking on the *Maxi Studio ISIS* icon in the Windows taskbar. Click on *Soundbank Manager* and then select the *Bank Compiler* tab.



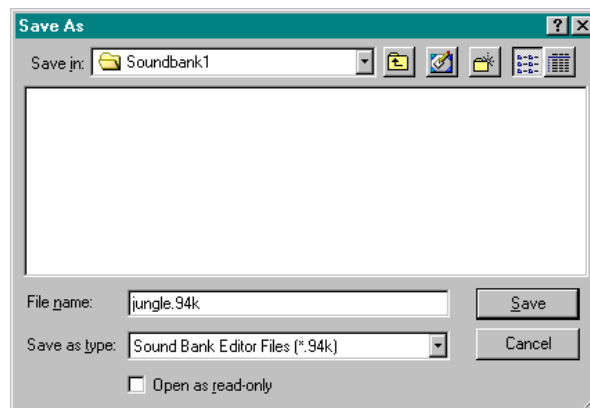
With the *Bank Compiler*, you can either create a new bank or edit an existing bank.



By entering a name in the *Internal* field, you may alter the name of the bank that will appear when you download it, without changing the name of the **.94** files.

## *Creating a soundbank (.94k file)*

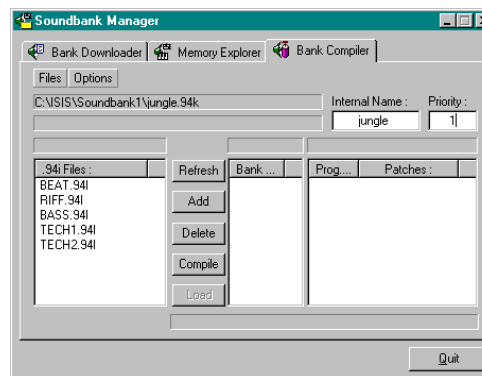
Click on *Files* and then *New*. A dialog box will appear prompting you to enter a name for your new soundbank. Select the directory where you have previously saved your instruments and type in a name for your new **.94k** file.



Click on *Save* and the main *Bank Compiler* screen will reappear with the specified path to your soundbank definition file shown above the three exploration windows. The left-hand window displays the list of instruments (**.94i** files) contained in your directory. These instruments are now available to be loaded into your soundbank. Select a priority level by default for your new bank by entering the appropriate number in the *Priority* field above the right-hand window, and then click on *Save*.

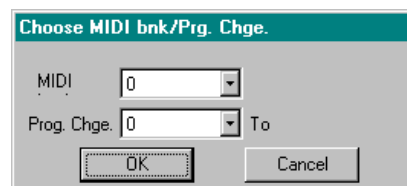


You may wish to copy other **.94i** files to your directory after you have started creating the soundbank. For these files to appear in the left-hand window with the original instruments, click on *Refresh*.

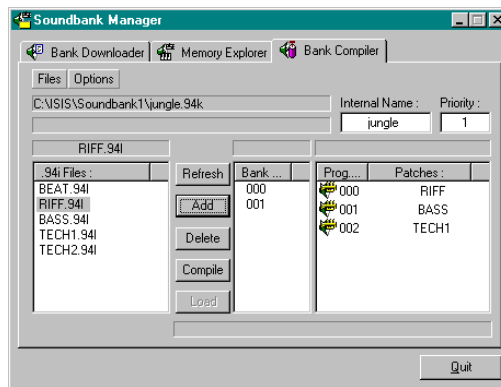


### ***Adding and deleting instruments***

Simply click on an instrument in the left-hand window that you wish to add to your soundbank, click on *Add*, and the following window will appear.



Enter the *MIDI bank* number to load your instrument into a particular MIDI bank and then assign a *Program Change* value to your instrument. Click on *OK*. Repeat this process until you have loaded all your chosen instruments. The instruments and their positioning are then displayed in the right-hand windows.



If you wish to remove an instrument, click on the *Program Change* number in the right-hand window of the instrument you wish to remove and click on *Delete*. Click on *Files/Save* to keep your changes.

### ***Modifying an existing soundbank (.94k file)***

Click on *Files* and then *Open*. A dialog box will appear prompting you to select the name of the soundbank you wish to load for modification.

Follow the same procedure to add and delete instruments as for creating a soundbank.

### ***Compiling a soundbank (.94b file)***

Click on the *Options* menu and then click on *94k compilation*. You can either enable or disable the *Auto find 94b filename*. If you enable this option, your **.94b** file will automatically be allocated the same name as your **.94k** file, otherwise a *Save As...*

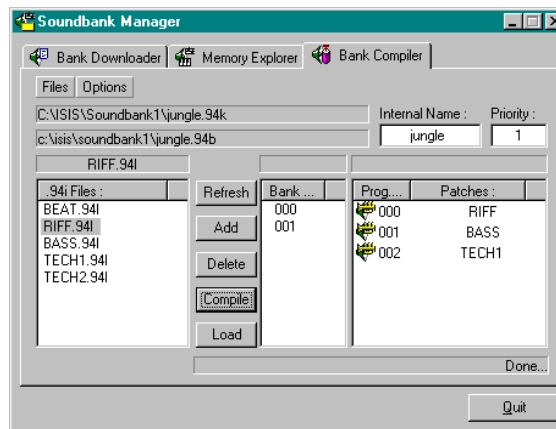


The path, directory and name of your compiled soundbank will appear underneath the corresponding information for the **.94k** file.



You dispose of an available 4MB of RAM on your soundcard. If you need to add extra RAM then you'll need a SIMM. Your RAM capacity is extendable to 36MB. Details concerning SIMM installation are dealt with in the online hardware manual.

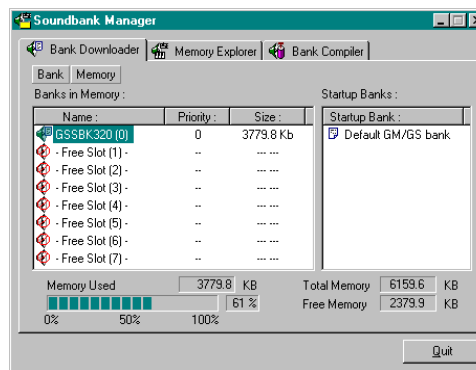
window will appear prompting you to select a name for your soundbank. Click on *Compile* to compile your soundbank into a downloadable format to your soundcard's RAM.



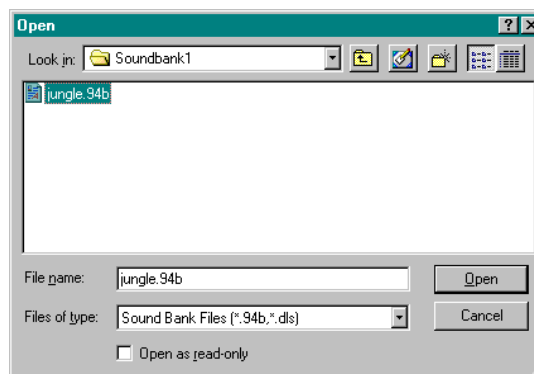
It is possible to download your new soundbank directly at this stage by simply clicking on *Load*.

### **Downloading soundbanks**

A soundbank must be loaded into RAM each time you wish to use it. Click on the *Bank Downloader* tab to view the soundbanks that are currently loaded into memory.



To download your soundbanks, click on *Bank*, and then click on *Load*. Alternatively, right-click on a free slot to access the *Bank* menu.

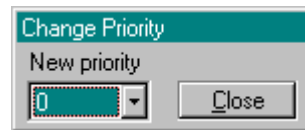


Select the soundbank you want to load and click on *Open*. The soundbank will become visible in the *Banks in Memory* window.

Each line in the *Banks in Memory* window corresponds to a soundbank and defines its name, priority parameter and the space it occupies in memory.

Available memory space is monitored with a graphic representation underneath the display windows.

You can select a priority number for your soundbank if you are loading more than one soundbank. Click on *Bank* and then click on *Priority*, or double-click on the name of the soundbank, to access the *Change Priority* window.



Enter the priority number you wish to allocate to the soundbank in question and then click on *Close*.

Click on *Bank* and then *Remove* if you want to delete a soundbank. Click on *Memory* and then *Empty* if you want to delete all soundbanks currently in memory.

If you have removed the soundbank delivered with the card, click on *Memory/Initialise/System Default Init* to reload it.

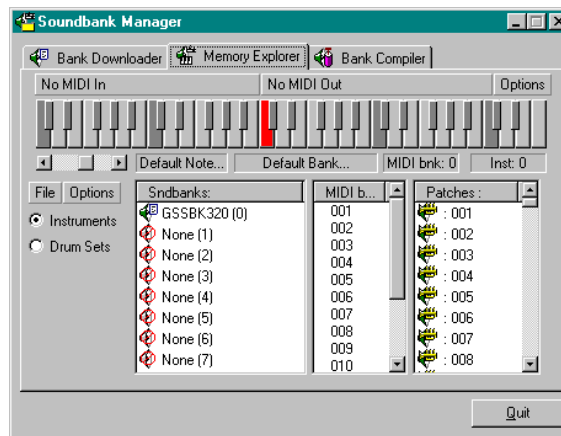
### ***Memory explorer***

*Soundbank Manager* also incorporates an explorer with multiple functions, allowing access to the contents of the soundbanks loaded in memory. At the same time,



The software proposes the ISIS MIDI Synthesizer, as your MIDI-Out port by default. Click on *Yes* or click on the *MIDI-Out* tab above the keyboard to select another port.

*Memory Explorer* is equipped with a virtual keyboard so that you can also test your instruments as you select them.



- *Snd Banks*: The first window displays the soundbanks currently in memory.
- *MIDI banks*: The second window displays all the MIDI banks that are present within a particular soundbank. You must select the soundbank you want to explore. When you select the soundbank, the software will prompt you to select a MIDI-Out device so that you can test your instruments. Once you have enabled your MIDI port you will be able to play notes.
- *Patches*: A click on a particular MIDI bank will cause all the patches that make up that variation to be displayed in the third window. It will also cause the first patch of that variation to be played. You may now test each of the instruments within that MIDI bank.



If you decide to choose your own MIDI In/Out configuration, click on *Options/Save In/Out current configuration*.

Instruments masked by other instruments from other banks with higher priorities will not be visible since the explorer only displays those instruments that are currently available for use in a sequencer.

The information directly above these three windows tells you which soundbank, MIDI bank and patch are currently selected together with the last note played on the keyboard. The key range on the keyboard may be modified using the scroll-bar underneath the keyboard.

#### *MIDI In/MIDI Out*

The MIDI In and MIDI Out tabs above the virtual keyboard list the current system peripheral ports that are available. If other software enables another peripheral, it will be displayed automatically here.

Now you're ready to create some mega-cool stuff! The Maxi Studio ISIS kit comes complete with instructions on how to get the most out of your sequencer with the written guide *Introduction to Logic Audio Pro ISIS*, together with a fully detailed online manual.

### ***MULTIMEDIA CONFIGURATION - GAMER FX***

Switching to *Multimedia Mode* is recommended in order to obtain an optimum configuration (*Gamer FX* is not available in *Console 8/4 Mode*).

Full details on how to run the *Gamer FX* software application are dealt with in the online manual. The following section explains how to use the application in conjunction with your favorite games to add stunning, ultra-realistic special effects.

As Windows is a multi-window environment, you can run *Gamer FX* in one window and your game in another.

To use Maxi Studio ISIS's real-time effects, first run the *Gamer FX* software and then your game. To move from one to the other, use the Windows shortcut [Alt]+[Tab].



Use the following procedure to implement your effects:

1. Click on *Gamer FX* in the pop-up Maxi Studio ISIS menu in the Windows taskbar.
2. Select the preset you want to implement or create your own, customized preset.
3. Minimize *Gamer FX* to the taskbar.
4. Launch your Windows or DOS game under Windows.

If you subsequently wish to modify your game's sound effects, then simply switch to *Gamer FX*. To do this, pause your game and press [Alt]+[Tab] until the selection returns to *Gamer FX*. Once you have carried out your modifications press [Alt]+[Tab] again to return to your game.

## APPENDICES

### *APPENDIX A: SOUNDBANKS*

If you wish to sample your own instruments, you will also need to create your own soundbanks. To do this you need to assemble your instruments (created with *Instrument Manager*) into the correct format (using *Soundbank Manager*) so that you can compile a soundbank (again with *Soundbank Manager*).

Once correctly formatted, these banks are ready for use and may be loaded into RAM (*Soundbank Manager*) and accessed simultaneously along with the standard General MIDI instruments. (This is the soundbank that is delivered as standard with Maxi Studio ISIS).

The creation and compilation of these banks is dealt with in detail in this guide. This section aims to demystify certain principles concerning the composition of soundbanks and at the same time explores the important notion of soundbank priority, where more than one bank is loaded into RAM.

#### *.94 Files*

The first point to be made is the distinction between the various **.94** file formats, as each format corresponds to a totally different stage in your music creation, and each stage must be carried out to create an operational soundbank.

- **.94i** files. These files are created from their own particular **.WAV** or **.SMP** files using *Instrument Manager* and contain a binary description of a particular sound or instrument.
- **.94k** files. Once enough instruments (or **.94i** files) have been created, they need to be assembled into a **.94k** file, which will contain a binary definition for each of the individual sounds or instruments to be compiled in your soundbank. The **.94k** file also contains all other necessary information concerning the sounds such as



*To simplify the chain, the **.94k file** should be considered as a programming file, essential for soundbank compilation, but illegible for your sequencer. Once you have compiled your soundbank (into a **.94b file**), it is nonetheless advisable to keep the **.94k file**. It is impossible to edit a compiled soundbank, whereas the source **.94k file** may be edited and recompiled quickly into another functional soundbank.*

the *patch number*, the *variation* to be played and the *priority level*. (These terms are explained below).

- **.94b** files. These binary files may be considered as your actual soundbanks, compiled from source **.94k** files. Each of these files contains a series of MIDI messages that define your soundbank, and may be loaded directly into RAM. It should be noted that once your bank is compiled, it no longer carries the **.94** extension, although this is still defined in the file's properties.

In short, try to remember that

- .94i** is for instrument,
- .94b** is for bank,
- .94k** is for contents (I tried my best...).

In order to carry out each of these stages, it is imperative that all relevant **.WAV** or **.SMP** files, **.94i** files and **.94k** files be listed in the same directory.

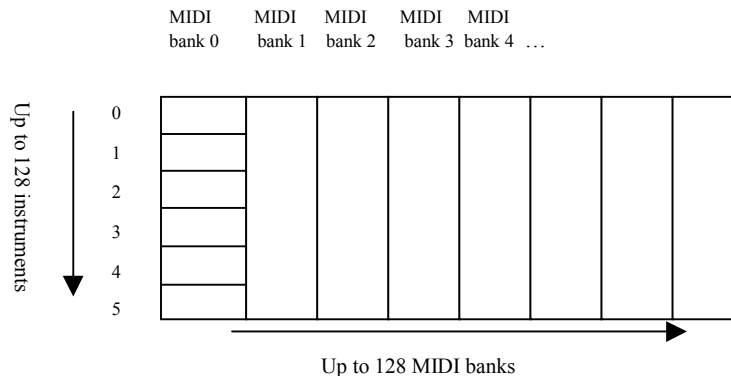
On the other hand, compiled soundbanks (**.94b** files) may be listed elsewhere, because they contain all the above listed information in its entirety.

## ***Soundbanks, MIDI banks and their instruments***

The next point is the distinction between two different types of bank, the soundbank and the MIDI bank. The following diagram gives a visual impression of how a soundbank would be structured if we could see it.



*Each MIDI bank within the soundbank contains its own list of up to 128 instruments.*



Each soundbank is made up of 128 MIDI banks. Once this principle is clear, it should be noted at the same time that each MIDI bank is made up of 128 instruments. (It is therefore possible to have up to 16,384 instruments in a single soundbank. Whether you have enough RAM to be able to use it is an entirely different matter...).

Of course, some of these MIDI banks will be partially or entirely empty, but the theory remains that each soundbank is capable of consisting of 128 different sets of 128 instruments.

In the standard soundbank delivered with Maxi Studio ISIS, MIDI bank 0 corresponds to General MIDI, and contains 128 instruments.

Variations of the General MIDI instruments are contained in subsequent MIDI banks.



To avoid confusion, it should be noted that in General MIDI terminology, a bank and a variation are the same thing. This manual uses the term **MIDI bank** to distinguish it from **soundbank**. The term **variation** should be considered as a group or set of instruments contained in the same MIDI bank.

In the following diagram, for instance, MIDI bank 8 contains a variation for instruments 1, 5, 6 & 7 and MIDI bank 16 contains a second variation for instruments 1, 5 & 6.

	General MIDI	MIDI bank 8	MIDI bank16		
0	Grand Piano	Piano 1v	Piano 1v		
1	Bright Piano				
2	El. Grand Piano				
3	Bright Piano				
4	H. Tonk Piano	Detuned EP1	El. Piano 1v		
5	El. Piano 1	Detuned EP2	El. Piano 2v		
6	El. Piano 2	Coupled Hps.			
7	Harpsichord				

Up to 128 MIDI banks containing instrument variations

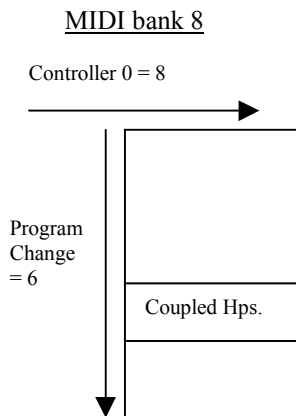
### ***Patch Numbers, Variations and Program Changes***

Now that the general layout of a soundbank has been explored, we can introduce the corresponding vocabulary.

- **Patch.** In general, in current MIDI language, instruments are referred to as patches. In the above diagram, if instrument 1 of General MIDI is a grand piano, then in MIDI terms it is referred to as Patch 1 of MIDI bank 0.
- **Variation.** Confusion can occur when using this term because sometimes it is used to refer to an instrument and sometimes to the MIDI bank itself. A variation is the entire set of instruments contained within any single MIDI bank. It should be noted that when creating your own banks, you are free to position your instruments without regrouping, so that for example, Patch 1 of MIDI bank 1 is not necessarily a variant of Patch 1 of MIDI bank 0.
- **Program Change.** This is where things get a little complicated. Patch 1 of MIDI bank 0 is a grand piano. *It is also Program Change 1 of the General MIDI.* In fact, the Program Change is the instrument's index number within a *particular* MIDI bank and is used to access the instrument from a sequencer. A *Patch* (instrument) is therefore accessible within a MIDI bank by its *Program Number*, the MIDI bank being accessible through selection of the number of the bank in question.

The two important commands from your Logic Audio Pro ISIS sequencer to access your soundbanks are the following:

- **Bank Select.** To address a particular MIDI bank you need to send a Bank Select message containing the number of the MIDI bank. In General MIDI language, the command that deals with this is known as “Controller 0”. You therefore send a



“Controller 0” message with a value of 8 (if you want to access MIDI bank 8), or with a value of 0 (if you want to access MIDI bank 0).

➤ **Program Change.** To address a particular patch you need to send a Program Change message with the Program Number assigned to the instrument.

In the example on the left:

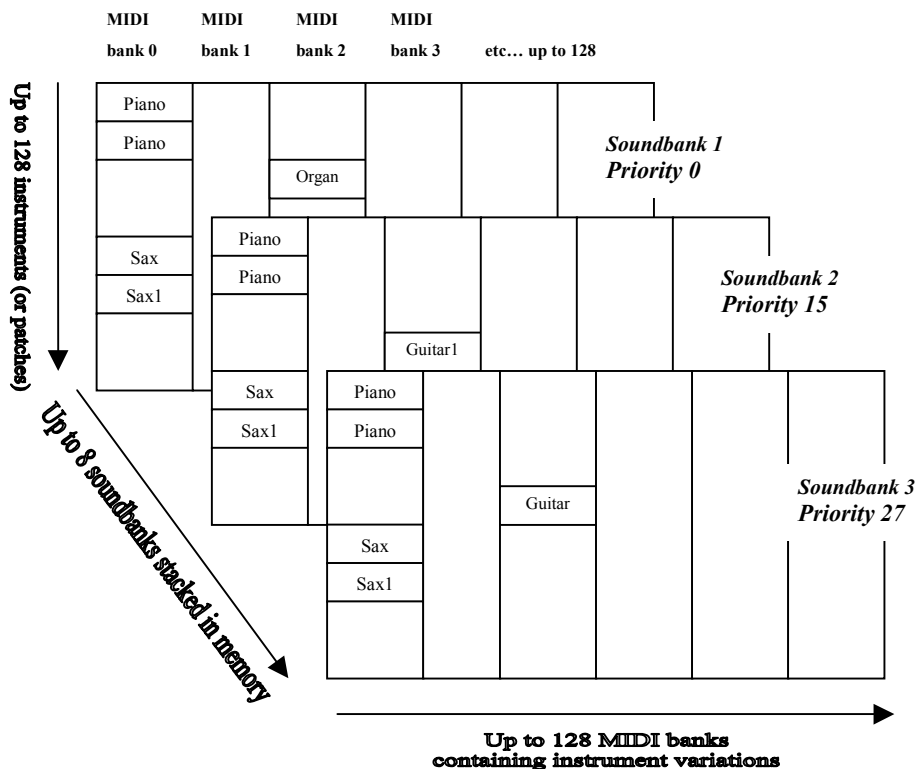
To access the Coupled Harpsichord you must follow these steps in the right order.

1. Send a Controller 0 message with the value of 8 (MIDI bank 8).
2. Send a Program Change message with the value of 6 (Patch 6).



To offer an increased variety of possibilities, Maxi Studio ISIS operates on a system of priority. You can select a priority level from 0 to 127, and the higher the figure the higher the priority. With instruments in the same MIDI bank and with the same Program Number but from different soundbanks, the instrument in the soundbank with a higher priority number will *mask* the other instrument. As previously explained in this manual, it is possible to load up to 8 soundbanks simultaneously. In the example, in MIDI bank 0, patches 1, 2, 5 & 6 of the soundbank with priority 1 will mask the equivalent instruments in the soundbank with priority 0. In MIDI bank 2, however, patch 4 in both soundbanks with priority 0 and 1 will be masked by the guitar in the soundbank with priority 2.

### Priority Levels



## APPENDIX B: THE MIDI SYNTHESIZER

### General MIDI instruments

This table lists the 128 General MIDI instruments. These instruments can be used on all channels except channel 10, which is reserved exclusively for percussion instruments.



PC stands for Program Change.

PC	GENERAL MIDI	PC	GENERAL MIDI	PC	GENERAL MIDI	PC	GENERAL MIDI
1	(Grand) Piano 1	33	Accoustic Bass	65	Soprano Sax	97	FX 1 (rain)
2	(Bright) Piano 2	34	Elec. Bass (finger)	66	Alto Sax	98	FX 2 (soundtrack)
3	(El. Grd) Piano 3	35	Elec. Bass (pick)	67	Tenor Sax	99	FX 3 (crystal)
4	Honky-tonk Piano	36	Fretless Bass	68	Baritone Sax	100	FX 4 (atmosphere)
5	El. Piano 1	37	Slap Bass 1	69	Oboe	101	FX 5 (brightness)
6	El. Piano 2	38	Slap Bass 2	70	English Horn	102	FX 6 (goblins)
7	Harpsichord	39	Synth Bass 1	71	Bassoon	103	FX 7 (echoes)
8	Clavi	40	Synth Bass 2	72	Clarinet	104	FX 8 (sci-fi)
9	Celesta	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Shamisen
12	Vibraphone	44	Contrabass	76	Pan Flute	108	Koto
13	MariMBa	45	Tremolo Strings	77	Blown Bottle	109	KaliMBa
14	Xylophone	46	Pizzicato Strings	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Orchestral Harp	79	Whistle	111	Fiddle
16	Santur	48	Timpani	80	Ocarina	112	Shanai
17	Drawnbar Organ	49	String EnseMBle 1	81	Lead 1 (square)	113	Tinkle Bell
18	Percussive Organ	50	String EnseMBle 2	82	Lead 2 (sawtooth)	114	Agogo
19	Rock Organ	51	Synth Strings 1	83	Lead 3 (calliope)	115	Steel Drums
20	Church Organ	52	Synth Strings 2	84	Lead 4 (chiff)	116	Woodblock
21	Reed Organ	53	Choir Aahs	85	Lead 5 (charang)	117	Taiko Drum
22	Accordion(French)	54	Voice Oohs	86	Lead 6 (voice)	118	Melodic Tom
23	Harmonica	55	Synth Voice	87	Lead 7 (fifths)	119	Synth Drum
24	Tango Accordion	56	Orchestra Hit	88	Lead 8 (bass+lead)	120	Reverse CyMBal
25	Ac. Guitar (nylon)	57	Trumpet	89	Pad 1 (fantasia)	121	Gt. Fret Noise
26	Ac. Guitar (steel)	58	TroMBone	90	Pad 2 (warm)	122	Breath Noise
27	El. Guitar (jazz)	59	Tuba	91	Pad 3 (polysynth)	123	Seashore
28	El. Guitar (clean)	60	Muted Trumpet	92	Pad 4 (choir)	124	Bird Tweet
29	El. Guitar (muted)	61	French Horn	93	Pad 5 (bowed)	125	Teleph. Ring
30	Overdriven Guitar	62	Bass Section	94	Pad 6 (metallic)	126	Helicopter
31	Distortion Guitar	63	Synth Brass 1	95	Pad 7 (halo)	127	Applause
32	Guitar harmonics	64	Synth Brass 2	96	Pad 8 (sweep)	128	Gunshot

## Instrument Variations

PC	General MIDI	MIDI bank 1	MIDI bank 2	MIDI bank 8	MIDI bank 9	MIDI bank 16	MIDI bank 24	MIDI bank 32	MIDI bank 127
1	(Grand) Piano 1			Piano 1w		Piano 1d			Acou Piano 1
2	(Bright) Piano 2								Acou Piano 2
3	(El. Grd) Piano 3								Acou Piano 3
4	Honky-tonk Piano								Elec Piano1
5	El. Piano 1			Detuned EP 1		El. Piano 1v	60's El. Piano		Elec Piano 2
6	El. Piano 2			Detuned EP 2		El. Piano 2v			Elec Piano 3
7	Harpsichord			Coupled Hps.			Harpsi. 0		Elec Piano 4
8	Clavi								Honky Tonk
9	Celesta								Elec Org 1
10	Glockenspiel								Elec Org 2
11	Music Box								Elec Org 3
12	Vibraphone								Elec Org 4
13	Marimba								Pipe Org 1
14	Xylophone								Pipe Org 2
15	Tubular Bells			Church Bell	Carillon				Pipe Org 3
16	Dulcimer (Santur)								Accordion
17	Drawbar Organ			Det. Organ 1		60's Organ 1		Organ 4	Harpsi 1
18	Percussive Organ			Det. Organ 2				Organ 5	Harpsi 2
19	Rock Organ								Harpsi 3
20	Church Organ			Ch. Organ 2		Ch. Organ 3			Clavi 1
21	Reed Organ								Clavi 2
22	Accordion (french)			Acc. (Italian)					Clavi 3
23	Harmonica								Celesta 1
24	Tango Accordion								Celesta 2
25	Ac. Guitar (Nylon)			Ukulele		Nylon Gt. 0		Nylon Gt. 2	Syn Brass 1
26	Ac. Guitar (Steel)			12-str. Guitar		Mandolin			Syn Brass 2
27	El. Guitar (jazz)			Hawaiian Gt.					Syn Brass 3
28	El. Guitar (clean)			Chorus Gt.					Syn Brass 4
29	El. Guitar (muted)			Funk Gt.		Funk Gt.2			Syn Bass 1
30	Overdriven Guitar								Syn Bass 2
31	Distortion Guitar			Feedback Gt.					Syn Bass 3
32	Guitar harmonics			Gt. Feedback					Syn Bass 4

# English

PC	General MIDI	MIDI bank 1	MIDI bank 2	MIDI bank 8	MIDI bank 9	MIDI bank 16	MIDI bank 24	MIDI bank 32	MIDI bank 127
33	Acoustic Bass								Fantasy
34	Finger Bass								Harmo Pan
35	Picked Bass								Chorale
36	Fretless Bass								Glasses
37	Slap Bass 1								Soundtrack
38	Slap Bass 2								Atmosphere
39	Synth Bass 1	Synth Bass101		Synth. Bass 3					Warm Bell
40	Synth Bass 2			Synth. Bass 4	Rubber Bass				Funny Vox
41	Violin			Slow Violin					Echo Bell
42	Viola								Ice Rain
43	Cello								Oboe 2001
44	Contrabass								Echo Pan
45	Tremolo Strings								Doctor Solo
46	Pizzicato Strings								School Daze
47	Orchestral Harp								Bell Singer
48	Timpani								Square Wave
49	String Ensemble 1			Orchestra					Str Sect 1
50	String Ensemble 2								Str Sect 2
51	Synth Strings 1			Syn Strings 3					Str Sect 3
52	Synth Strings 2								Pizzicato
53	Choir Aahs							Choir Aahs 2	Violin 1
54	Voice Oohs								Violin 2
55	Synth Voice			Synth Voice2					Cello 1
56	Orchestra Hit								Cello 2
57	Trumpet								Contrabass
58	Trombone	Trombone2							Harp 1
59	Tuba								Harp 2
60	Muted Trumpet								Guitar 1
61	French Horn	Fr. Horn2							Guitar 2
62	Brass Section			Brass 2					Elec Gtr 1
63	Synth Brass 1			Syn Brass 3		Analog Brs 1			Elec Gtr 2
64	Synth Brass 2			Syn Brass 4		Analog Brs 2			Sitar
65	Soprano Sax								Acou Bass 1
66	Alto Sax								Acou Bass 2
67	Tenor Sax								Elec Bass 1
68	Baritone Sax								Elec Bass 2

PC	General MIDI	MIDI bank 1	MIDI bank 2	MIDI bank 8	MIDI bank 9	MIDI bank 16	MIDI bank 24	MIDI bank 32	MIDI bank 127
69	Oboe								Slap Bass 1
70	English Horn								Slap Bass 2
71	Bassoon								Fretless 1
72	Clarinet								Fretless 2
73	Piccolo								Flute 1
74	Flute								Flute 2
75	Recorder								Piccolo 1
76	Pan Flute								Piccolo 2
77	Blown Bottle								Recorder
78	Shakuhachi								Pan Pipes
79	Whistle								Sax 1
80	Ocarina								Sax 2
81	Lead 1 (square)	Square		Sine Wave					Sax 3
82	Lead 2 (sawtooth)	Saw		Doctor Solo					Sax 4
83	Lead 3 (calliope)								Clarinet 1
84	Lead 4 (chiff)								Clarinet 2
85	Lead 5 (charang)								Oboe
86	Lead 6 (voice)			Lead Voice2					Engl Horn
87	Lead 7 (fifths)								Bassoon
88	Lead8 (bass+lead)								Harmonica
89	Pad 1 (new age)								Trumpet 1
90	Pad 2 (warm)								Trumpet 2
91	Pad 3 (polysynth)								Trombone 1
92	Pad 4 (choir)			Pad Choir2					Trombone 2
93	Pad 5 (bowed)								Fr Horn 1
94	Pad 6 (metallic)								Fr Horn 2
95	Pad 7 (halo)								Tuba
96	Pad 8 (sweep)								Brs Sect 1
97	FX 1 (rain)								Brs Sect 2
98	FX 2 (soundtrack)								Vibe 1
99	FX 3 (crystal)	Syn Mallet							Vibe 2
100	FX4 (atmosphere)								Syn Mallet
101	FX 5 (brightness)			Brightness2					Wind Bell
102	FX 6 (goblins)			Goblins2					Glock
103	FX 7 (echoes)	Echo Bell	Echo Pan						Tube Bell
104	FX 8 (sci-fi)								Xylophone

# English

PC	General MIDI	MIDI bank 1	MIDI bank 2	MIDI bank 8	MIDI bank 9	MIDI bank 16	MIDI bank 24	MIDI bank 32	MIDI bank 127
105	Sitar	Sitar2							Marimba
106	Banjo								Koto
107	Shamisen								Sho
108	Koto			Taisho Koto					Shakuhachi
109	Kalimba								Whistle 1
110	Bag pipe								Whistle 2
111	Fiddle								Bottleblow
112	Shanai								Breathpipe
113	Tinkle Bell								Timpani
114	Agogo								Melodic Drum
115	Steel Drums								Deep Snare
116	Woodblock			Castanets					Elec Perc 1
117	Taiko Drum			Concert BD					Elec Perc 2
118	Melodic Tom			Melo Tom 2					Taiko
119	Synth Drum			808 Tom	Elec Perc1				Taiko rim
120	Reverse Cymbal								Cymbal

32\*: This MIDI bank can also be obtained with a Controller 0 value of 24.



Each of the empty boxes corresponds to the same sound as the preceding MIDI bank. For example, patch 120 of MIDI bank 16 is a reverse cymbal (as in the default GM bank), but patch 119 of MIDI bank 16 is Elec Perc 1 (as in MIDI bank 9).



Don't forget that these instruments can be used on all channels except channel 10, which is reserved for percussion. (PC means Program Change). The special effects are accessed in the same way as instruments: activate controller 0 with the value of the bank that contains the effect (i.e. value of 9 for MIDI bank 9), then send the program change (PC) value of the effect you want to activate.

Examples:

- Patch 125 of MIDI bank 0 is *Telephone Ring*. It is also Program Change no. 125 of the General MIDI bank.
- Patch 125 of MIDI bank 3 is *Door Closing*. For access to this MIDI bank, you must therefore send a controller 0 with the value 3, followed by Program Change no. 125.

## Special Effects

PC	General MIDI	MIDI bank 1	MIDI bank 2	MIDI bank 3	MIDI bank 4	MIDI bank 5
121	Gt. Fret Noise	Gt. Cut Noise	String Slap			
122	Breath Noise	Fl. Key Click				
123	Seashore	Rain	Thunder	Wind	Stream	Bubble
124	Bird Tweet	Dog	Horse Gallop	Bird 2		
125	Teleph. Ring	Teleph. Ring 2	Door Creaking	Door Closing	Scratch	Wind chime
126	Helicopter	Car Engine Start	Car Braking	Car Pass	Car Crash	Police Siren
127	Applause	Laughing	Screaming	Punch	Heart Beat	Footstep
128	Gunshot	Machine gun	Lasergun	Explosion		

PC	MIDI bank 6	MIDI bank 7	MIDI bank 8	MIDI bank 9	MIDI bank 10	MIDI bank 127
121						Castanets
122						Triangle
123						Orche Hit
124						Telephone
125						Bird Tweet
126	Train	Jet Takeoff	Starship	Burst Noise		One Note Jam
127						Water Bell
128						Jungle Tune

MIDI bank 127 contains the MT 32 special effects.

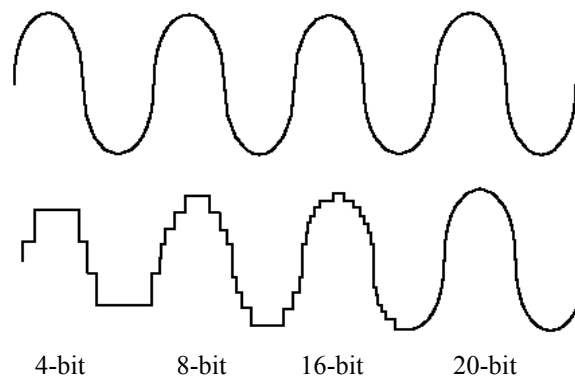
## **APPENDIX C:** **UNDERSTANDING DIGITAL** **RECORDING**

### ***Recording by numbers***

The computer *alphabet* is very simple. In fact there are only two characters: 0 and 1! Its *vocabulary* is entirely made up of *words* that are made up in their turn, of different combinations of these two characters. Each digit is known as a *bit*, so when we talk about 8-bit and 16-bit signals, this means that each recorded value has either 8 or 16 figures. With me so far? OK. The following table shows the possible number of combinations using these resolutions on the understanding, of course, that the more possibilities there are, the more accurate the reproduction of the recording.

8-bit signal possibilities	16-bit signal possibilities
00000000=0	0000000000000000=0
11111111=256	1111111111111111=65,535

They say a picture speaks a thousand words for some, so without wanting to do a word count, here's a sketch to even up the balance a bit.



As you can see, the greater the number of bits available, the more accurate the signal (and the greater the dynamic range because each available bit provides 6dB of dynamic range).

Still with me? Good.

Sampling, sampler, samples... with the advent of the digital era this word crops up everywhere! But what is sampling, really? How does it work? And where did it come from?

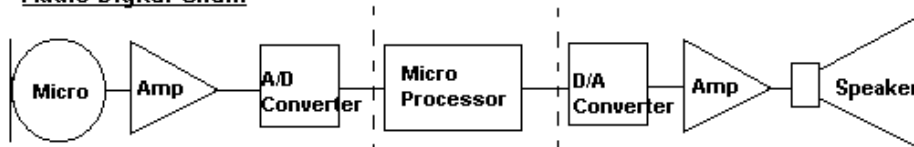
In case you're tired of being blinded by science, here's a good old-fashioned non-technical explanation.

You probably know the old expression "Your eyes were playing tricks on you!". In fact, your eyes are up to far more tricks than you can imagine! Take the cinema for example. When a movie is filmed, it is recorded as a series of still images, at a rate of

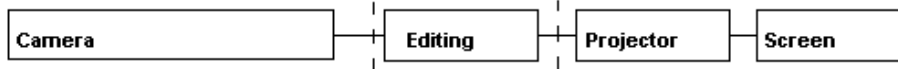
24 images per second. Demi Moore's fluid movements have suddenly become staccato snapshots!

In fact, each shot is what is known as a sample, and when these are projected one after the other on a screen, the human eye is tricked into reconstituting the analog fluidity due to retinal persistence.

### Audio Digital Chain



### Video Digital chain



Just switch the terms for sound sampling and it's the same horse, with a different jockey. The camera is transformed into an analog to digital converter (ADC). The number of images per second becomes the sampling rate (that is, the number of recording values per second, an awesome 44,100 for CD quality sampling). The projector is transformed into a digital to analog converter (DAC), and the screen is

transformed into an amplifier and loudspeaker. Cinderella's pumpkin doesn't get transformed into a carriage though and thankfully Demi Moore remains Demi Moore!

Several factors will determine whether your sample is a glass slipper or a clog! Each sampler has its own particularities, and the software and material used will hallmark the digital sound produced, as will the sampling rate. The golden rule to remember is that the higher the sampling rate, the larger the bandwidth and consequently, the truer the sound restitution. A greater resolution (16 bits as opposed to 8 bits) also assures a better quality. More importantly, but often overlooked, is the quality of the circuit that converts from analog to digital and back again, as this has an enormous influence on the sound quality. Just imagine the work cut out for the ADC that must, for instance, "dissect" Pavarotti as accurately as possible, and transform him into binary numbers. The DAC has the extremely delicate role of reconstructing the audio signal, reincarnating an operatic maestro from millions of 0s and 1s.

As with traditional analog recordings, the original recording quality is of vital importance. A well-sampled sound provides the necessary quality for impeccable modifications and subsequent reconstruction.

## TECHNICAL SUPPORT

Before you contact us (\*), please have the following information ready:

- Product name
- Product number (on the package above the bar code)
- Date of purchase of your product
- On-screen error message and the steps that you successfully completed in your installation
- Your full system configuration details: processor type, memory, operating system.

### ***IF YOU NEED TO RETURN A PRODUCT***

Guillemot offers a standard one-year parts & labor warranty. Please fill in the warranty card and return it as soon as possible (\*). You will be added to the mailing list to receive upgrade information, information on new products and special offers.

To return a Maxi product for factory service, contact a Guillemot technical support representative at the phone number corresponding to the country you live in (\*).

**In Europe:** After confirmation by our technical support (\*) that your product is defective, please return it to your retailer who will then deal directly with Guillemot.

**In the USA and Canada:** To obtain a refund (excluding shipping and handling charges), you must first call the Guillemot Technical Support hotline (\*) to receive a Return Merchandise Authorization (RMA) number. You must then clearly write this RMA number and the mention “WARRANTY RETURN” on the shipping box. When returning the product, you must also enclose a copy of the original invoice and the reason(s) for returning the product.

When returning the product, make sure all the materials such as the manual(s), the connection cables, the product packaging box and the registration/warranty card are included.

ADDRESS FOR U.S. CUSTOMERS: **Geologistics America for Guillemot - US Airport Cargo Facility - 300 US Airports way - East Granby - CT 06026-1398 USA**

ADDRESS FOR CANADIAN CUSTOMERS: **Guillemot – 5375 rue Paré – Montréal (Québec) – Canada**

**(\*) All hotline details are listed at the end of the manual.**

## WARRANTY CARD

Guillemot offers a standard one-year warranty. Please fill in this coupon and return it as soon as possible to the address listed at the end of the manual. You will be added to the mailing list to receive upgrade information, information on new products, and special offers.



Product Number (above package bar code).....  
 Date of Purchase .....  
 Mrs. ☐ Mr. ☐  
 First Name.....Surname.....  
 Company.....Title.....  
 Address.....  
 .....  
 Zip/Postal Code.....  
 Country.....  
 Telephone.....Fax.....  
 E-mail address.....  
**How did you hear about this product?**  
☐ Online site:.....☐ Magazine article:.....  
☐ In-store demo.....☐ Friend/Colleague.....  
☐ Tradeshow.....☐ Other:.....  
**Where did you purchase this product?**  
☐ Computer Retail Store.....☐ Online Purchase:.....  
☐ Superstore.....☐ Other:.....  
**Why did you purchase this product?**  
☐ Its Reputation.....☐ Its Features.....  
☐ Its Price.....☐ Other:.....  
**What kind of magazines do you read regularly?**  
☐ Computer/Video game.....  
 .....  
☐ Other.....  
 .....

### System Configuration:

<input type="checkbox"/> Windows 3.1 or 3.11	<input type="checkbox"/> Windows 95 or 98 or NT
<input type="checkbox"/> Linux	<input type="checkbox"/> Other.....
<input type="checkbox"/> Pentium 75 and higher	<input type="checkbox"/> Pentium MMX 166 and higher
<input type="checkbox"/> Pentium II 233 and higher	<input type="checkbox"/> Pentium III:.....
<input type="checkbox"/> Cyrix CPU:.....	<input type="checkbox"/> AMD CPU:.....
<input type="checkbox"/> Mac:.....	<input type="checkbox"/> Soundboard:.....
<input type="checkbox"/> MPEG board:.....	<input type="checkbox"/> CD-R drive:.....
<input type="checkbox"/> CD/DVD drive:.....	<input type="checkbox"/> VGA board:.....
<input type="checkbox"/> TV converter:.....	<input type="checkbox"/> 3D accelerator:.....
<input type="checkbox"/> Other:.....	

### Which of the following equipment do you own?

<input type="checkbox"/> Scanner:.....	<input type="checkbox"/> Modem:.....
<input type="checkbox"/> Hi-fi:.....	<input type="checkbox"/> Console:.....

### Which kind of games do you prefer?

<input type="checkbox"/> Race	<input type="checkbox"/> Adventure/role play
<input type="checkbox"/> Shoot 'em up	<input type="checkbox"/> Aerial simulation
<input type="checkbox"/> Sport	<input type="checkbox"/> Strategic
<input type="checkbox"/> 3D action	<input type="checkbox"/> Arcade/platform

**What kind of multimedia products and accessories do you think you will purchase in the next six months?** .....

☐ I do NOT want to receive news about upcoming Guillemot products  
☐ I do NOT want to receive special offers or information from selected Guillemot partners

Dealer:

Town:

Signature and Stamp:

