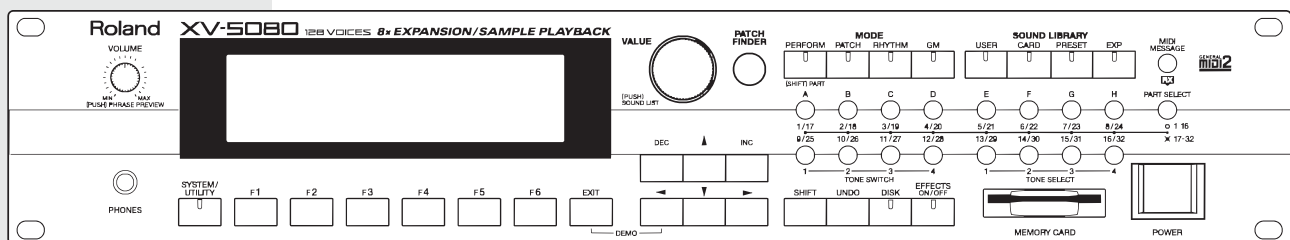


Roland XV-5080

128 VOICES **8x EXPANSION / SAMPLE PLAYBACK**

DISK MANAGEMENT

THIRD EDITION



This guide presents an overview of the Roland XV-5080 sample playback operation, and provides in-depth coverage of partitioning and formatting drives, transferring sample libraries, and managing large sample library hard drive setups.

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Preface

Why use Samples instead of Preset Patches?

If you are reading this document, chances are you are interested in, planning on using, or are currently using samples with your XV-5080.

Many people do not fully understand the difference between using samples and presets, and in many cases do not feel that the extra effort of using samples will be worthwhile.

While the SR-JV and SRX Expansion Boards do indeed provide high quality sound source material, using samples opens up a larger world of huge sample libraries and multitudes of instrument idiomatics and playing techniques and variations.

The XV-5080 ships with 64MB of Preset ROM containing 1083 waveforms*. This equates to an average of only 60k per waveform, or 30k per waveform for stereo.

* On the XV-5080, a Preset waveform is not a single sample file but is a complete instrument or instrument sound. This may include multi-samples (per-note samples), multiple velocity splits or fades, and all of the sample parameters such as Key, Start, End, Loop. Roland calls it a 'waveform' just for simplicity.

A single XV-5080 that is fully expanded with four SR-JV80 and four SRX ROM Waveform Expansion Boards supplies a total of 384MB of waveform data (64MB Preset + 64MB (4x16MB) SR-JV + 256MB (4x64MB) SRX).

The internal SIMM memory is 128MB which is two times the Preset memory. Just *one* sample CD can contain 650MB of waveform data, almost twice the data of the eight expansion boards. And many current sample CD libraries contain multiple discs. For example, the Roland L-CD702 *Orchestral Family Vol.1/Vol.2* CD-ROM Library contains two discs for a total of 1.2GB of sounds, and the Spectrasonics *Metamorphosis* CD-ROM Library contains five discs for a total of 2.5GB of sounds plus a Mac/PC Data Disc.

The XV-5080 Preset ROMs contain fixed waveforms utilizing a proprietary lossy 2:1 compression algorithm, and in many cases *fewer multi-samples* and *velocity layers*, and shorter *waveform envelopes* than would be found in a common sample library. This equates to a slightly less *brilliant* or *full* sound. The 2:1 compression means that the SR-JV80 boards are actually 8MB ROM and the SRX boards are actually 32MB ROM, containing waveform samples that are the equivalent of 16MB and 64MB when decompressed.

As an example, the SR-JV80-08 Keyboards of the '60s & '70s Expansion Board contains a total of 16MB of waveform ROM and a total of 255 waveforms, of which 18 waveforms supply two variations of a Wurlitzer piano.

In contrast, the Roland L-CDP-10 Keyboards of the 60's & 70's Vol.2 Project Series Sample Archives contains two Wurlitzer pianos *each 32MB in size -- both together are the equivalent of one entire SRX board*. The re-released L-CDX-02 Keyboard Instruments sample library also contains these same pianos.

Preface

Why use Samples (continued)

The total number of Preset Patches on a single XV-5080 is one User Bank of 128, eight Preset A-H of 128 (1024), eight Card A-H of 128 (1024), four SRJV80 of 256 (1024), four SRX of 512 (2048) for a maximum total of 5248 Patches. An almost unlimited number of patches can be stored on an XV-5080 Hard Drive, limited only by the size of the drive, of which 10GB through 40GB SCSI drives and 30GB through 320GB SATA drives are very common.

The Roland L-CD702 Orchestral Family sample library contains 1.2GB of data and 1831 Patches, or about three times the waveforms of a fully expanded XV-5080, and almost 16 Banks worth of Patches. This library usually sells for the price of a single SR-JV80 board.

The Roland L-CDP Project Series CDs total 4670 Patches across 14 CDs of 200MB each, or about 2.8GB of samples. These currently retail for about \$50 each. That's about \$700 for all 14 CDs or the equivalent in cost of about two 64MB SRX Boards.

The Roland L-CDX Sample Library CDs are usually found on sale for around \$80.

Another advantage of the 650MB CD format is that it allows a sample library to contain huge instrument waveform sets. It is not uncommon to find such instruments as a 32MB, 64MB or even a 128MB piano; 16MB, 32MB or 50MB guitar; and a 7MB violin section or 14MB symphonic violin section.

Sample CDs also have the advantage of containing a multitude of genre or instrument-specific sounds. For example, a violin sample library CD can contain literally dozens of idiomatic playing techniques for just one instrument alone. The Roland L-CDP-13 String Sections Vol.1 contains violins, violas, cellos and contra-basses with many techniques including agitato, arco, legato, marcato, pizzicato, ponticello, tremolo, arpeggios, mutes, p, mf, f and fff velocities, with and without vibrato, plus effect sounds and more. Various mic'ing techniques and EQ settings for various samples is also provided.

The only objective to keep in mind is that samples are not usually as easy to implement as presets, as the majority of sample libraries compatible with the XV-5080 do not have defined routing and effects assigned to the patches, as compared to Presets. This includes both the S-700 and Akai S-1000/3000 libraries. XV-5080 native sample libraries can easily accommodate routing and effects, making their use every bit as easy as presets with the exception of the disk load time.

The lack of routing and effects on many compatible libraries is easy to overcome once the library is converted to native XV-5080 format and saved to a storage device such as a hard drive. All edited patches can be easily saved to the drive, to be loaded at a later time with complete effects and routing intact.

Preface

Why not a "true" Sampler

The question has been asked a few times: why isn't the XV-5080 a true sampler but only a *sample playback* module.

With today's current level of technology and the demands of most modern studios, the "true" sampler is becoming obsolete.

Most "true" samplers, such as the Roland S-760 and Fantom-X Rack, implement a simple and inexpensive unbalanced 1/4" microphone level input. Very few samplers support balanced TRS or XLR professional-grade inputs.

Why should this matter?

No hardware sampler ever designed has a full input recording strip that can compete with today's professional quality mixing console, with its high quality microphone preamps, high-quality ADCs (analog-to-digital converters), input dynamics processors and multi-band parametric equalizers.

Many analog and digital desks in the range of a few thousand dollars have input strips that are superior to the standard sampler microphone input on any current hardware sampler.

Even though many newer samplers include 20-bit or 24-bit ADCs, most of them still manage the waveform internally at a 16-bit depth. This limits the amount of freedom that you have for editing the waveform within the sampler itself, other than cropping and setting start, stop and loop points. A 16-bit 44.1kHz or 48kHz waveform should never pass through transforms, equalization, or normalization, as the amount of data is insufficient to provide a truly accurate post-edit waveform.

A sample developer will obtain much superior results by using professional microphones along with a pre-amp and console to record the sounds into a DAW (digital audio workstation) at 24-bit 88.2kHz or 96kHz. Perform all trimming and editing using state of the art software and plugins. Then use a high-quality software SRC (sample rate conversion) to reduce the final edited samples to 16-bit 48kHz Wav or AIFF for transfer to the XV-5080.

Modern consoles also allow you to sample a true stereo waveform, whereas almost all samplers are limited to a mono microphone input.

Sample Playback Requirements

Required Hardware

In order to utilize the Sample Playback features of the XV-5080 synthesizer, additional hardware must be installed inside the unit and attached to its external connectors.

The minimum recommended additional hardware includes 64MB or 128MB of SIMM RAM Memory and a SCSI CD-ROM Drive. It is also strongly recommended that a SCSI or SATA Hard Drive and SmartMedia Card are added to simplify and enhance sample operation.

The Roland CD-RACK allows for the addition of both a CD-ROM Drive and a Hard Drive within a single 1U EIA 19" case. These drives can also be simultaneously shared among two or more XV-5080s for large sampler setups.

If you plan to transfer a large number of sample library CDs to an attached Hard Drive, it is recommended that you install 128MB of RAM Memory since the amount of memory defines the largest bank that can be transferred at one time.



The RAM Memory is installed into slots underneath the top removable panel, SmartMedia cards are inserted into the front panel slot, and CD-ROM Drives, Removable Drives and Hard-Drives are attached to the SCSI connector on the rear panel.

See the XV-5080 Quick Start and Owner's Manual for information on installing the additional hardware.

Installing SIMM Memory:	Quick Start Pg. 37 Owner's Manual Pg. 181
Installing SmartMedia Cards:	Owner's Manual Pg. 5, 191, 195
Connecting SCSI Drives:	Quick Start Pg. 45 Owner's Manual Pg. 185, 239

Required Software

The Roland XV-5080 supports sampler libraries in the following formats: Roland XV (its native format), Roland S-700, Akai S-1000 and S-3000, Wav, and AIFF.

The Roland S-700 format was made popular by the S-760 sampler, and includes discs from Roland plus libraries from most every major sample library publisher.

The Akai format was developed for the Akai S-series Samplers.

Wav and AIFF formats are standard mono and stereo formats popularized by PC and Mac computers.

Formats from other samplers such as GigaStudio*, EMU*, Creative SoundFonts*, etc., require external software conversion into one of the above formats supported by the XV-5080. This document does not discuss software packages available for sample file conversion.

Connecting SCSI Devices

An XV Guide to SCSI

SCSI devices come in such a huge variety of types, styles, speeds, interfaces, and other buzz-words that it can be confusing for most anyone.

In this document we will only cover the SCSI information that is relevant to the XV-5080. So if you locate a SCSI device that does not match what is covered here, it may not work or may require special adapters and configurations in order to successfully integrate it into the XV SCSI network.

The Bus

SCSI Interface Buses are named for their speed and connection type, with names such as SCSI-1, Fast SCSI, Fast Wide SCSI, Ultra SCSI, Wide Ultra SCSI, Ultra2 SCSI, Wide Ultra2 SCSI, and on and on...

The XV-5080 incorporates a SCSI-1 Interface Bus.

SCSI Buses come in a few various types, such as single-ended ("SE"), low voltage differential ("LVD"), and high voltage differential ("HVD"). The type of bus determines various parameters such as speed, cable length and type.

The XV-5080 supports the SE bus type.

The XV-5080 incorporates a SCSI-1 Interface Bus. This is the most basic of the buses, with the lowest speed but also the easiest to set up and the least expensive.

SCSI-1, also called Narrow SCSI, has a maximum speed of 5MB per second, an 8-bit Bus Data Width (it sends one byte at a time), supports "SE" single-ended devices, and allows for a maximum of 8 devices, numbered as ID 0 to ID 7.

A typical XV-5080 SCSI setup will transfer data at a common rate of 1 or 2MB per second. This is dependant on the device being read from and the format of the data being read. Hard Drives are usually the fastest, with typical transfer speeds on the XV-5080 of 1.5MB to 2MB per second. ZIP-100 drives have a typical transfer speed of ½MB (500k) per second on the XV-5080. CD-ROM drives transfer at various rates depending on the "spin rate" of the drive, for example a 24x CD-ROM drive can transfer at a maximum of 3.6MB per second (24x 150k). Typical CD-ROM transfer speeds on the XV-5080 will be one-half to three-quarters of their spin rate, up to a maximum of about 2MB per second.

Cabling

SCSI buses have guidelines and limits on their cabling setup.

The SCSI-1 SE Bus supports a total cable length of six meters (6m) or 19.5 feet. This is the entire length of any and all cables in the chain, from the XV-5080 on one end to the Terminator on the other end.

A typical setup may include an external SCSI cable from the XV-5080 to a SCSI Drive Case, and one or more internal SCSI cables within the case to connect the drives together. Ending with the cable connecting to a Terminator.

System Version and Tests

How to determine the OS Version

The XV-5080 supports user-updatable Flash ROM memory for storage of the Operating System firmware. This allows Roland to provide new features and bug fixes in updated files that can easily be transferred to the unit via MIDI files or SmartMedia content.

To determine the current OS (Operating System) level of the XV-5080, press [SYSTEM/UTILITY] then [F6](Info) for the SYSTEM Information page. The current OS version is displayed in the top right-hand side of the display.
Example: Ver. 1.30

Additional system version information can be determined through the XV-5080 Test Mode.

Note that entering Test Mode will reset the User Bank to factory defaults. So be sure to backup all of your User Bank data prior to entering Test Mode.



The Roland XV-5080 Test Mode information in the Roland Service Notes PDF is incorrect. To enter the Test Mode, perform the following:

- Press and hold the [EXIT] button while switching the power on.
- Continue holding the [EXIT] button while watching the LCD display for the Roland XV-5080 logo and SCSI Device Check, which is displayed after the splash display screens for "128 Voices..." "4xSRX...". Note that the [SYSTEM/UTILITY] button's LED will light up at this time.
- Release the [EXIT] button and press and hold the lit [SYSTEM/UTILITY] button. After a few seconds, the display will show "wait a moment" imposed over part of the Roland XV-5080 logo. The Test Mode top page will then be displayed.

See the Roland Service Notes for the various Test Mode screens and operation. Press the [EXIT] button at any time to return to normal operation.

Performing a SIMM Memory Test

The XV-5080 unfortunately has no integrated test procedure specifically for the sample memory SIMMs. The Test Mode only checks the operation of the main board ROM and RAM for the Processor and DSP, etc.

The SYSTEM Information page and the Test Mode top page both show the detected SIMM RAM sizes, so if the installed SIMMs differ from this, then expect a defective or incorrect SIMM Module.

Since there is no integrated SIMM test, a defective or marginal SIMM that shows up correctly on the SYSTEM Information and Test Mode pages can only be determined if the unit fails to function properly with sample data. This can include distorted sample playback, static pops during sample playback, and corrupted Partial Name information on the LCD display screens.

System Version and Tests

Performing a SCSI Test

The XV-5080 Test Mode includes a basic SCSI Bus test procedure. This test is far from exhaustive, but provides an idea whether the SCSI Bus is functional.

Note that entering Test Mode will reset the User Bank to factory defaults. So be sure to backup all of your User Bank data prior to entering Test Mode.



Requirements

- XV-5080 Synthesizer
- Iomega Zip-100 SCSI Drive (standard SCSI external type)
- a blank Zip-100 Disk
- SCSI Cable

SCSI Test

Make sure that all devices are powered off.
Connect the SCSI Zip drive to the XV-5080 via the SCSI Cable.
Set the Zip drive's SCSI ID to either 5 or 6 (5 is the default ID for Zip drives).
Turn on the Zip drive's power.
Enter into Test Mode on the XV-5080 by performing the following:

- Press and hold the [EXIT] button while switching the power on.
- Continue holding the [EXIT] button while watching the LCD display for the Roland XV-5080 logo and SCSI Device Check, which is displayed after the splash display screens for "128 Voices..." "4xSRX...". Note that the [SYSTEM/UTILITY] button's LED will light up at this time.
- Release the [EXIT] button and press and hold the lit [SYSTEM/UTILITY] button. After a few seconds, the display will show "wait a moment" imposed over part of the Roland XV-5080 logo. The Test Mode top page will then be displayed.

Once in Test Mode, press [SHIFT]+[7/23] to jump to the SCSI Test page (page 7).
Insert the Zip disk into the Zip drive.
Turn the [VALUE] knob to start the test.

If the display shows an error, verify that the cabling and termination is correct.
Possible error messages include:

DEV-NOT-FOUND	no SCSI device found (check the Zip drive cable)
DISK-NOT-FOUND	no disk found (the disk is not inserted or is defective)
MEM-ERR	memory abnormal (bad memory in the XV)
READ-ERR	read operation failed (error reading device or disk)
WRITE-ERR	write operation failed (error writing to device or disk)
COMPARE-ERR	compare operation failed (read data did not match)

If the SCSI Read/Write test was successful (no error occurred), you may exit Test Mode by pressing [EXIT] to return to the Test Mode top page, then press [EXIT] again to exit Test Mode.

NOTE

The XV-5080's SCSI ID in Test Mode is set to 7, regardless of the rear panel switch setting.

XV File Structure

The User Bank and SIMMs

During sample playback operation, the XV-5080 utilizes the User Bank area for storage of any Performances and Patches loaded from the drives or media card. The User Bank can hold parameter information for 64 Performances, 128 Patches, and 4 Rhythm Sets.

The installed SIMMs are where the actual sample waveforms are stored when samples are loaded. With 128MB of memory installed, up to 128MB of sample waveforms can be utilized at one time.

Of the 32 MIDI Parts available, you can freely mix Preset Patches with Sample Patches when composing.

When you are using the sample playback features of the XV-5080, you should not use the User Bank to store your personal and modified Preset Patches. Instead you should use an installed media card for long-term or permanent rewritable Performance and Patch data storage.

While the User Bank retains all data when the power is turned off, the SIMMs will lose their data with no power. These are commonly called "non-volatile memory" and "volatile memory" respectively.

Because of this functionality, always be sure to save any sample playback work in progress including the SIMM data to either a drive or media card before powering off the XV-5080.

XV-5080 sample playback *Power Users* may wish to connect their synthesizer to an Uninterruptable Power Supply unit such as an APC BackUPS or SmartUPS, to prevent the loss of the SIMM data should the power be interrupted while you are working.

After you have been working with sample data on the XV-5080, don't be confused when you turn on the power at a later time and see that the User Bank still retains the last Patch and Performance data. Although the User Bank data will be intact, all waveform data that was previously in the SIMMs will be gone and must be re-loaded.

XV Sample File Structure

When saving Sample Patches to disk, the entire User Bank and any SIMM data is written to the media, you cannot write just one patch. Because of this, it is more efficient to save multiple Sample Patches within each file.

When loading from a file, you are free to choose a single patch or select any combination of patches to load into the User Bank area.

The actual files written to the media are an SVD file that is a full copy of the User Bank area, and the waveform contents of the SIMMs which are written into a sub-folder as Wav or AIFF files.

The waveform folder is always named "SAMPLE". Because of this, each SVD file and its corresponding waveform folder must be saved within their own individual folder level.

NOTE

External Drives will be referred to as "drives", SmartMedia Cards will be referred to as "media cards", and SIMM RAM Memory will be referred to as "SIMMs".

NOTE

The XV-5080 Owner's Manual refers to Sample Patches as **Multi-Partial** Patches.

NOTE

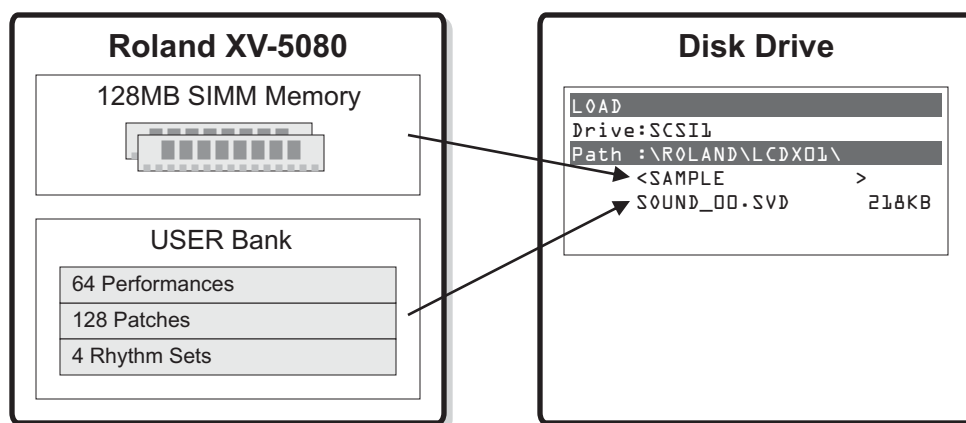
When saving to media, the entire User Bank Performances, Patches, Rhythm Sets and the System settings are saved to the SVD file. This document doesn't cover the System settings since it is aimed towards the sample playback portion of the XV-5080.

XV File Structure

XV Sample File Structure (continued)

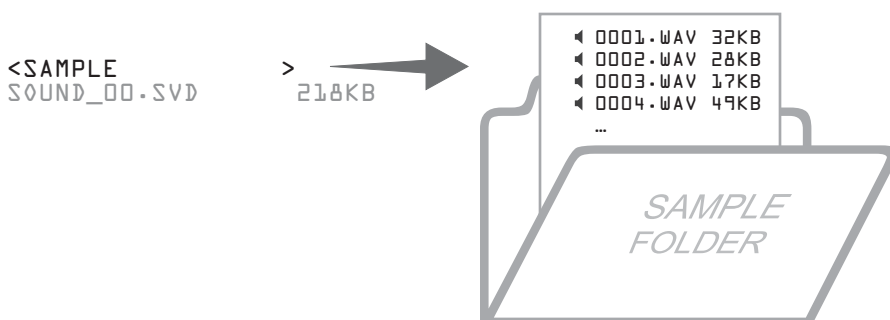
When saving to disk, the entire User Bank is written to the SVD file, all 64 Performances, all 128 Patches, all 4 Rhythm Sets, regardless of their contents. However, only the current waveforms in SIMM Memory are written to the <SAMPLE> folder, which may be less than the total amount of installed Memory.

The following figure depicts an example of how the User Bank and SIMM data are written to the drive.



In the example shown, the SOUND_00.SVD file contains a copy of the entire User Bank.

The SAMPLES folder contains the individual waveforms that comprise the patch(es) in either Wav or AIFF format (the format is chosen when saving). These waveform files are named numerically beginning at 0001.



Since the SAMPLE folder for each SVD file always contains waveforms with the same sequentially numbered file names, you cannot save multiple SVDs within the same folder location on the media, otherwise the waveform files will be overwritten with the most recent saved data.

XV File Structure

XV-5080 Disk Compatibility

The native disk format supported by the XV-5080 is compatible with Microsoft's FAT (also called FAT16) and FAT32 file systems, which are used by Windows 98, 2000 and XP and other newer Microsoft operating systems. FAT16 is normally used for removable media such as Zip drives and FAT32 used for fixed media (hard drives). FAT is an acronym for File Allocation Table, the method used to store the file data structure on the drive. FAT32 supports very large storage devices up to 8TB (terabytes) in size^{*1}.

The FAT32 format is supported by the XV-5080 for all large SCSI and SATA Hard Drive devices, and FAT16 format for removable drives such as iomega Zip and Jaz Drives. Supported CD-ROM, CD-R and CD-R/W Drive media are in ISO/HSF/UDF formats. If a multi-session CD is used, only the first compatible data session will be accessible by the XV-5080.

One of the main advantages to using FAT is the ability to easily share media between the XV-5080 and your PC computer. Wav or AIFF files can be written to CD-R or Zip media, then easily loaded into the XV-5080. This also allows you to save your Performance projects to Zip or other removable media which can be transferred to your PC for backup purposes.

New media such as Hard Drives and Zip Disks must be formatted prior to use either with the XV-5080 or using your PC. See the sections regarding *Preparing Media* in this document or your XV-5080 Owner's Manual for information on preparing disks for use with the synthesizer.

Note that on large hard disks the XV-5080 does not support creating multiple partitions, you must connect the drive to a PC with a SCSI adapter and use the disk management software on the PC to create the partitions.

Do not connect an XV-5080 directly to a PC computer running Windows and attempt to load or save data from the SCSI drive with the XV-5080.

Windows regularly accesses any connected drives, and if it attempts to access the XV-5080's drive at the same time that you are performing a load or save operation, the data may become corrupted.

See the section on *Computer Connectivity* in this document.

The SCSI Interface on the XV-5080 supports SCSI-1, SCSI-2 and Ultra-SCSI level devices.

The most common drives of this style use 50-pin connectors, those with 68-pin or 80-pin connectors may require specific adapters in order to properly interface with the XV-5080.

SCSI Wide drives require an adapter, or jumper setting on the drive if available, to set it to the SCSI Narrow specification prior to interfacing with the XV-5080.

^{*1}. The maximum possible number of clusters on a volume using the FAT32 file system is 268,435,445. With a maximum of 32kb per cluster with space for the file allocation table (FAT), this equates to a maximum disk size of approximately 8TB (terabytes).

You cannot format a volume larger than 32GB in size using the FAT32 file system in Windows 2000.

See Microsoft Knowledge Base Article number 184006 **Limitations of FAT32 File System** and Article number 314463 **Limitations of the FAT32 File System in Windows XP**.

XV File Structure

The Advantages of Various Media Types

The type of SCSI or SATA media that you choose for the XV-5080 will affect the performance of mass storage access.

Power Users may wish to attach a large and fast SCSI Hard Drive such as a 7200RPM 20GB through 40GB Wide or Ultra Hard Drive, or preferably a newer fast SATA Hard Drive or even a SSD (Solid State Drive) which has no moving parts and almost instant access times.

As a general rule, the larger the drive's capacity, the faster the data will be transferred. So a 20GB drive will usually be faster than a 2GB drive. SATA drives will also usually outperform SCSI-1 and SCSI-2 drives.

Common media types include:

CD Drive: required to load the majority of Sound Library discs; benefits of portability, inexpensive media with prices usually around \$1 per blank 650MB disc, ease of data transfer between PC and XV; CD-R/W media is the most cost effective method of data transfer to the XV; most modern drives support 32x speeds or greater (each "x" is 150kb/second, so a 32x drive can transfer up to 4.8MB/second, approaching SCSI-1 Hard Drive speeds).

Zip Drive: media is more expensive than CD-R with prices around \$10 per 100MB disk; benefits of portability and ease of *bi-directional* data transfer between the XV and PC.

Hard Drive: benefits of high speed and mass storage; SCSI sizes of 10GB through 40GB are common; SATA sizes of 30GB through 500GB are common. SCSI-1 devices transfer at speeds up to 5MB/second; SCSI-2 devices transfer at speeds up to 10MB/second. SATA devices are limited to the SCSI-1 bus speed.

Preparing Media

Formatting or Initializing Media

The majority of new media is shipped in a blank condition with no data stored on it. Before you can use the media, it must be formatted or initialized to be compatible with the XV-5080. Be aware that formatting will erase any data currently on the media if it is not blank.

The XV-5080 has functions specifically for formatting SmartMedia Cards, Hard Drives, and Removable Drive Media.

SmartMedia Cards

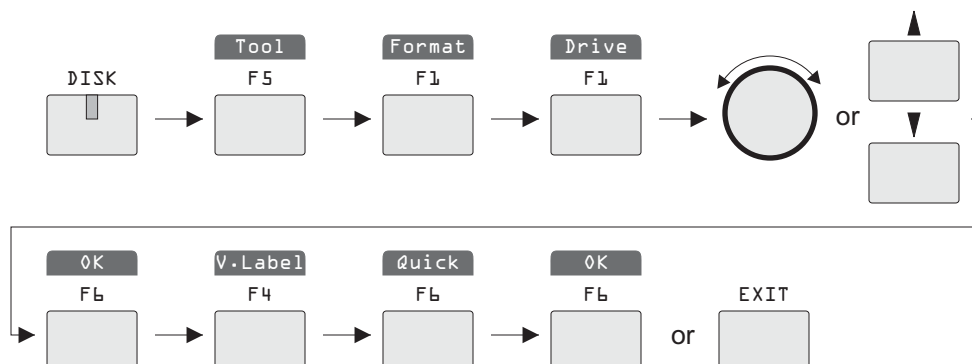
A SmartMedia card may contain a combination of Banks and Sample data. The capacity of the card determines the total number of Banks and/or megabytes of SIMM Sample Data that can be stored on it. Approximately four Banks can be stored per megabyte.

The first eight Banks written to a SmartMedia card are accessed by pressing the [CARD] SOUND LIBRARY button followed by one of the [A] through [H] buttons. If there are less than eight Banks on the card, only those Bank buttons will work.

The SmartMedia cards are treated like a solid-state disk drive, with most of the same functions that work on the hard drives also working on the card. SmartMedia cards are compatible with most standard PC computer card readers, allowing for data transfer between the XV-5080 and your PC.

To format a SmartMedia card follow these steps:

1. Press [DISK], lighting the indicator.
2. Press [F5](Tool).
3. Press [F1](Format).
4. Press [F1](Drive).
5. Turn the VALUE dial or press [▲] or [▼] to select "CARD".
6. Press [F6](OK).
- If desired, you can change the Volume Label by pressing [F4](V.Label).*
7. Press [F6](Quick), the message "Format, OK?" appears.
8. Press [F6](OK) to proceed with formatting or press [EXIT] to cancel.



See the XV-5080 Owner's Manual:
Pg.5 "Using DATA Cards"
Pg.190 "Loading Data Stored on Memory Cards"
Pg.195 "Saving All Data to Memory Card"
Pg.195 "Before Using a Memory Card"
Pg.196 "Formatting a Memory Card"
Pg.196 "Saving Data"
Pg.197 "Organizing the Contents of Memory Cards"

Preparing Media

Formatting or Initializing Media (continued)

Hard Drives

The XV-5080 supports a very wide range of Hard Drives, with the most popular being SCSI-2 or SCSI-Wide 10GB through 30GB drives with 50-pin and 68-pin interfaces. This document also covers how to use newer SATA drives.

Hard Drives have the largest storage capacity of all supported media and the fastest data access speed, even exceeding the loading speed of the SmartMedia Card.

The XV-5080 is fully compatible with the Microsoft MS-DOS and Windows FAT32 standard. Formatting a Hard Drive can be performed on either the XV-5080 or a PC computer equipped with a SCSI Interface, such as an Adaptec AVA-2906 or AHA-2940 PCI SCSI Interface.

If you decide to purchase a PCI SCSI Interface for your PC in order to support connectivity with your XV-5080 and its drives, be sure to obtain an interface that has a 25-pin External SCSI connector, such as is found on the rear panel of the XV-5080. Many PCI SCSI interfaces are designed for internal PC drives only, and do not connect to external SCSI devices. Additionally, some PCI SCSI Interfaces include a 50-pin High-Density SCSI-2 Female connector instead of the 25-pin style, which may require specific cables or a 50-to-25 adapter in order to use it with the XV-5080 and its drives.

Unlike most other media, hard drives support multiple partitions. Partitioning is a method used to divide a single large drive into smaller "logical" drives. For example, the single physical 60GB hard drive in a PC computer could be partitioned into two 30GB logical drives with assigned drive letters of C: and D:. There are both advantages and disadvantages to partitioning a hard drive. Much of the decision should be based on the format, operating system (if any), and data file types that will be written to the drive.

Personally I recommend that you use folders instead of partitions to organize your data into logical locations on the XV-5080 hard drive. If the amount of free space within a partition starts to get small, the only remedy is to re-partition and re-format the drive, erasing all of the data contained on it. Operating a 40GB or 60GB drive as a single large partition will not impact its performance since sample data usually contains considerably fewer files than a PC loaded with standard applications and data.

The XV-5080 is unable to create multiple partition settings on a hard drive, so a PC running DOS or Windows 2000/XP or special software such as the SCSI Utilities that were included with the PC SCSI Adapter must be used.

The XV-5080 provides two methods of formatting for Hard Drives, *Full* and *Quick*. The Quick format simply erases all of the existing data, whereas the Full format creates a single partition using the entire drive capacity and formats each track of the media. If you choose Quick and the XV-5080 is unable to format the disk, then you will be prompted to choose a Full format.

The length of time that it takes to complete the format varies with the total capacity of the drive. Drives of 10GB and larger can take 30 minutes to a few hours to complete.

See the XV-5080 Owner's Manual:
Pg.200 "Formatting a Zip Disk/Hard Disk"
Pg.200 "Saving Data"
Pg.239 "Connecting a SCSI device"

Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Formatting Drives with the XV-5080

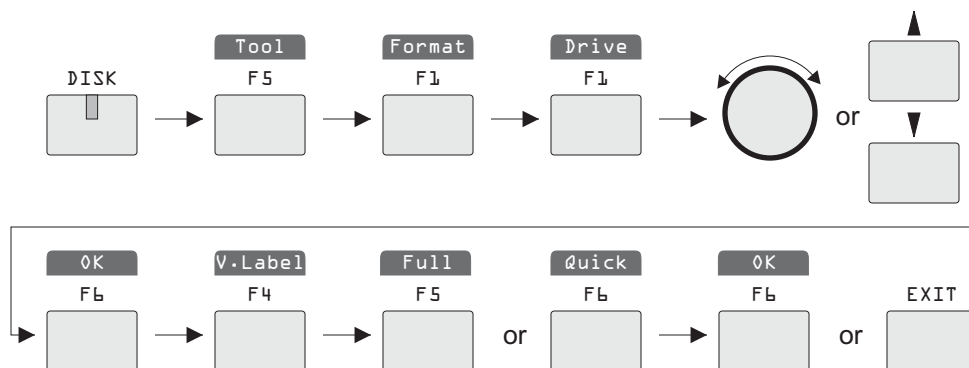
To format a Hard Drive with the XV-5080, follow these steps:

1. Press [DISK], lighting the indicator.
2. Press [F5](Tool).
3. Press [F1](Format).
4. Press [F1](Drive).
5. Turn the VALUE dial or press [▲] or [▼] to select the drive, eg: "SCSI1: HD".
*If the hard drive contains multiple partitions, the partitions on the drive are indicated as SCSI1:PO*****, SCSI1:P1*****, etc.*
6. Press [F6](OK).
- If desired, you can change the Volume Label by pressing [F4](V.Label).*
7. Press [F5](Full) or [F6](Quick), the message "Format, OK?" appears.
8. Press [F6](OK) to proceed with formatting or press [EXIT] to cancel.

If the hard drive is blank and has not been partitioned, use the Quick option.

If the hard drive has been partitioned into a number of individual partitions and you wish to format a specific partition, choose that partition and use the Quick option.

If the hard drive has been partitioned into a number of individual partitions and you wish to remove all of those partitions, choose the Full option. The entire disk is erased and all partition settings are eliminated, setting the drive to one large partition of the total drive space.



Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning and Formatting Drives with a PC

There are various methods for partitioning and formatting an XV-5080 Hard Drive using a PC computer equipped with a SCSI interface.

Successful drive preparation has been tested on MS-DOS 7, Windows 98SE, and Windows XP. Other compatible operating systems should also work fine.

All of these methods are very simple to perform and only require that the correct drivers for the SCSI interface be installed on the computer. Many common SCSI interfaces are directly supported under Windows, requiring no special driver setup.

Partitioning is required prior to formatting if no partitions exist on the drive or if you wish to change any current partition settings. Creating a single primary partition will effectively set the entire drive as one logical drive that utilizes the total storage space of the drive. Creating multiple partitions, one primary partition with one logical drive and one extended partition with one or more logical drives, allows you to divide the single physical drive into two or more logical drives whose sum equals the total storage space of the entire drive. I only recommend creating multiple partitions if the drive is 40GB or larger, and don't recommend creating one or more small partitions such as 1GB or less.

Partitioning a Drive with MS-DOS or Windows 98SE

Creating single or multiple partitions using MS-DOS or Windows 98SE requires the use of the DOS *Fdisk* command.

Fdisk may not reliably run from a Windows MS-DOS Prompt on some systems, so in these cases shut down and restart in MS-DOS mode.

Be sure to not select your computer's internal IDE drives and change their partition settings or you will lose all data contained on them.

From a DOS prompt, type "fdisk" and press [Enter]. Follow the on-screen Fdisk menus to set up your desired partitions. Choose [Y]es to Large Disk support.

```
Your computer has a disk larger than 512 MB. This version of Windows
includes improved support for large disks, resulting in more efficient
use of disk space on large drives, and allowing disks over 2 GB to be
formatted as a single drive.

IMPORTANT: If you enable large disk support and create any new drives on this
disk, you will not be able to access the new drive(s) using other operating
systems, including some versions of Windows 95 and Windows NT, as well as
earlier versions of Windows and MS-DOS. In addition, disk utilities that
were not designed explicitly for the FAT32 file system will not be able
to work with this disk. If you need to access this disk with other operating
systems or older disk utilities, do not enable large drive support.

Do you wish to enable large disk support (Y/N).....? [Y]
```

Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning a Drive with MS-DOS or Windows 98SE (continued)

First off, set the current fixed disk drive to the connected SCSI drive. Fdisk will see all of the IDE drives in the computer in addition to the SCSI drive, so be sure to choose the correct drive to work with.

```
Microsoft Windows 98
Fixed Disk Setup Program
(C)Copyright Microsoft Corp. 1983 - 1998

      FDISK Options

Current fixed disk drive: 1

Choose one of the following:

1. Create DOS partition or Logical DOS Drive
2. Set active partition
3. Delete partition or Logical DOS Drive
4. Display partition information
5. Change current fixed disk drive

Enter choice: [5]

Press Esc to exit FDISK
```

```
Change Current Fixed Disk Drive

Disk  Drv  Mbytes  Free  Usage
  1      C:  14316      100%
      E:  14308
  2      D:  19469      100%

(1 MByte = 1048576 bytes)
Enter Fixed Disk Drive Number (1-2).....[2]

Press Esc to return to FDISK Options
```

Once you have chosen the correct drive, move onto creating the partition settings.

Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning a Drive with MS-DOS or Windows 98SE (continued)

Create a DOS partition. I recommend creating a single Primary partition that allocates 100% of the drive's space. There is no need to set the partition as Active, since the XV-5080 will never be booting from the drive.

```

                                FDISK Options

Current fixed disk drive: 2
Choose one of the following:

1. Create DOS partition or Logical DOS Drive
2. Set active partition
3. Delete partition or Logical DOS Drive
4. Display partition information
5. Change current fixed disk drive

Enter choice: [1]

Press Esc to exit FDISK
```

```

                                Create DOS Partition or Logical DOS Drive

Current fixed disk drive: 2
Choose one of the following:

1. Create Primary DOS Partition
2. Create Extended DOS Partition
3. Create Logical DOS Drive(s) in the Extended DOS Partition

Enter choice: [1]

Press Esc to return to FDISK Options
```

Once the partition settings have been created, proceed to formatting the drive.

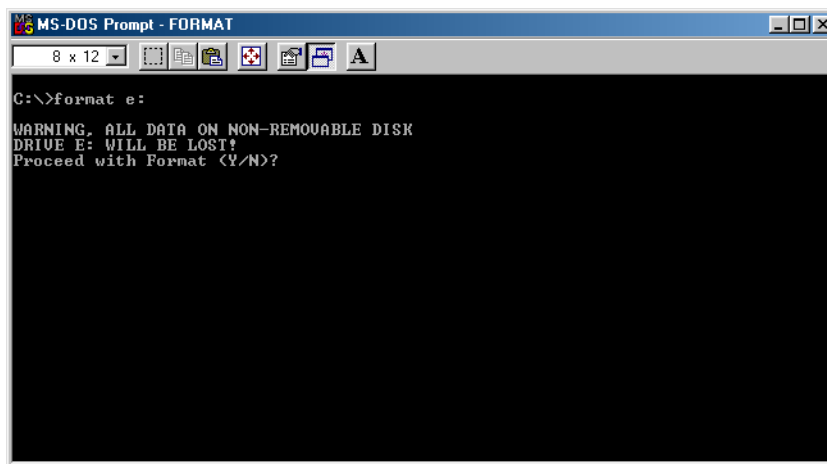
Preparing Media

Formatting or Initializing Media (continued)

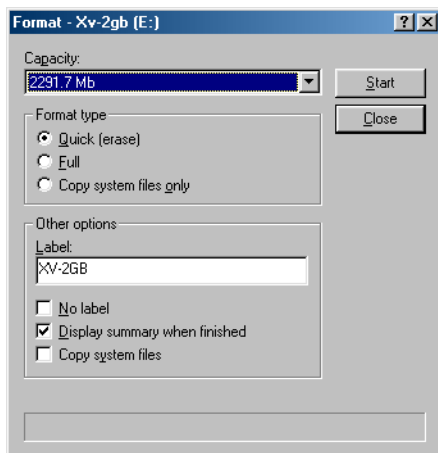
Hard Drives (continued)

Formatting a Drive with MS-DOS or Windows 98SE

From DOS mode or an MS-DOS prompt, use the standard Format command along with the SCSI drive's letter. Formatting may take a few minutes depending on the total size of the drive.



Or, using Windows Explorer, right-click on the SCSI drive in the drive tree on the left, and choose Format from the context-menu. Choose the Start button to proceed with formatting the drive.



Once the drive is partitioned and formatted, shut down the computer, disconnect the drive and connect it to the XV-5080 for use.

Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning and Formatting a Drive with Windows XP

The task of managing SCSI Hard Drives is considerably easier with Windows XP. Superior SCSI drive support and better management tools help simplify the tasks of partitioning and formatting.

All partitioning and formatting is accomplished through the XP Disk Management tool in the Administrative Tools for Computer Management.

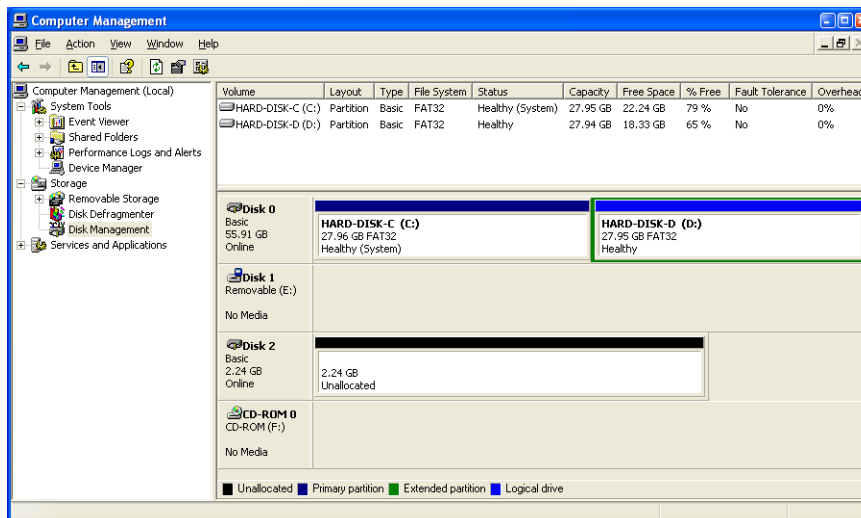
Start the Disk Management utility.

This dialog will show all of the fixed and removable drive devices currently installed on the computer.

Choose the SCSI Hard Drive for the XV.

Right-click on the *Unallocated* drive section and choose *New Partition* from the context-menu. This will launch the *New Partition Wizard*. Step through the Wizard answering the prompts and specifying the values that you desire.

As an example, the following dialogs are from a sample session creating a two-partition drive setup on SCSI **Disk 2**.



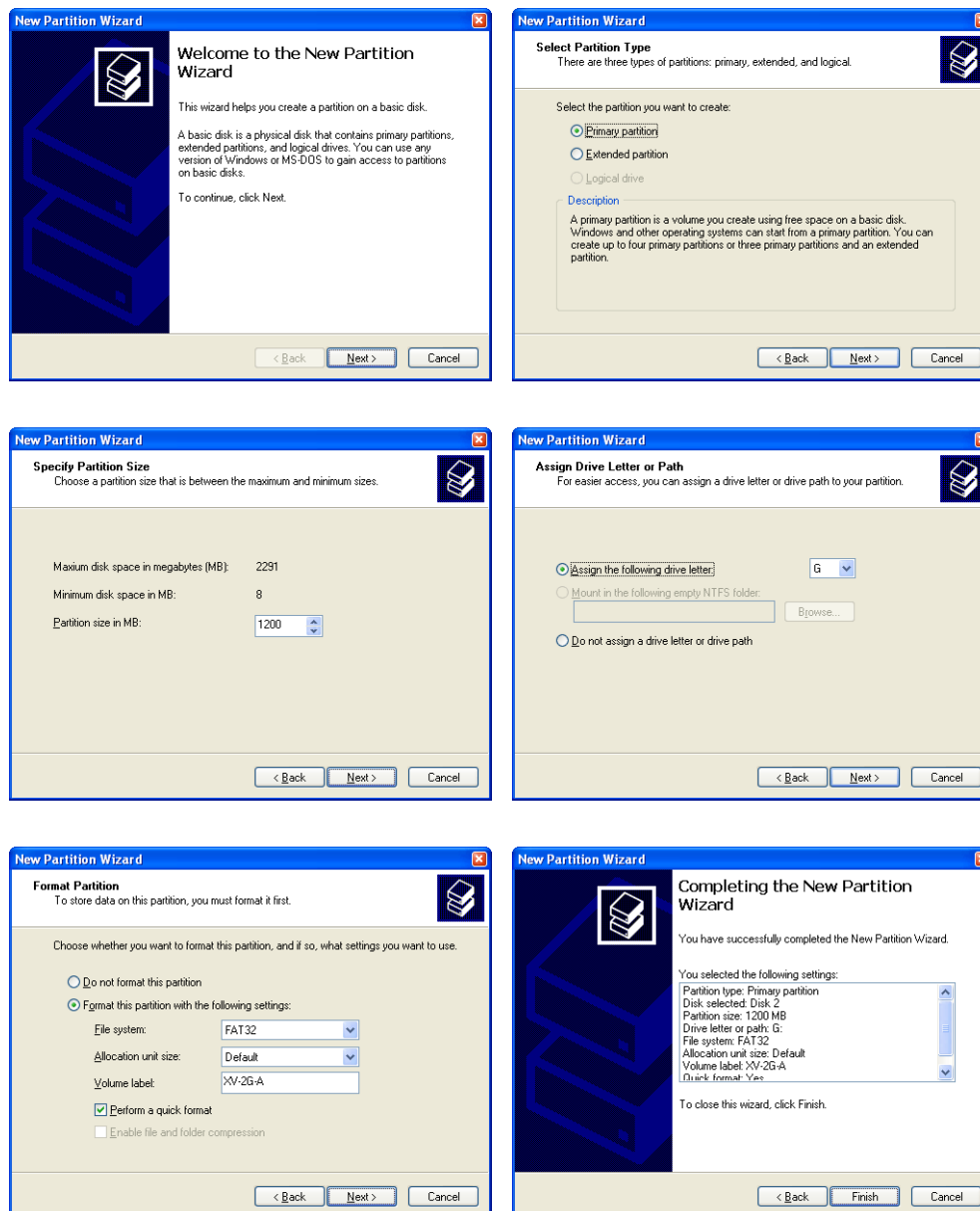
Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning and Formatting a Drive with Windows XP (continued)

Create the Primary Partition. In this example we set the Primary size to just over half of the available drive space. Be sure to specify FAT32 as the Format File System.



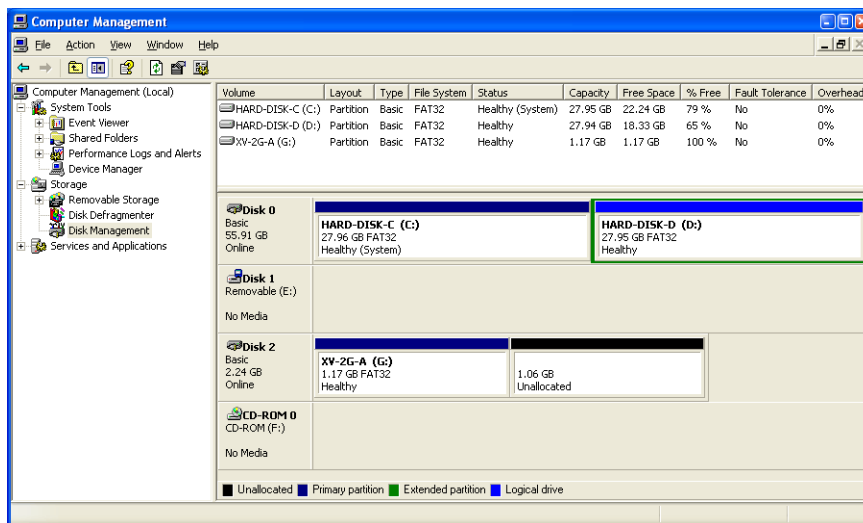
Preparing Media

Formatting or Initializing Media (continued)

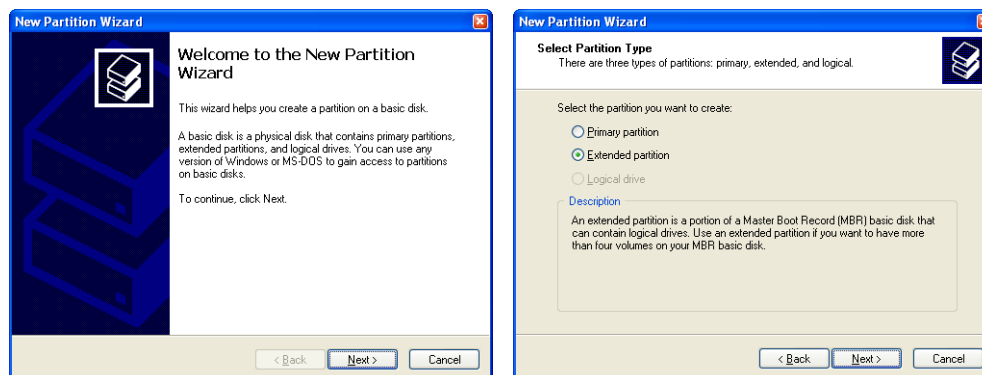
Hard Drives (continued)

Partitioning and Formatting a Drive with Windows XP (continued)

The first or Primary partition has now been created and formatted. The remainder of the drive space is currently unallocated. We will use that for our Extended partition with one logical drive.



Right-click on the unallocated portion and choose *New Partition*. This time as we go through the wizard, we'll set up an Extended partition.

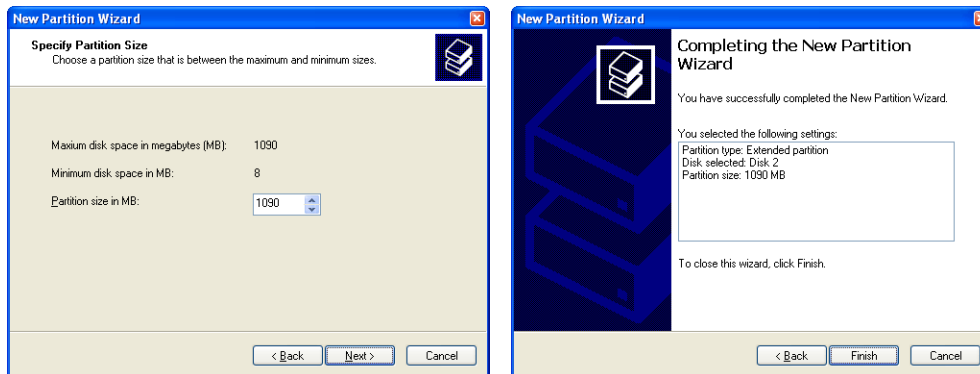


Preparing Media

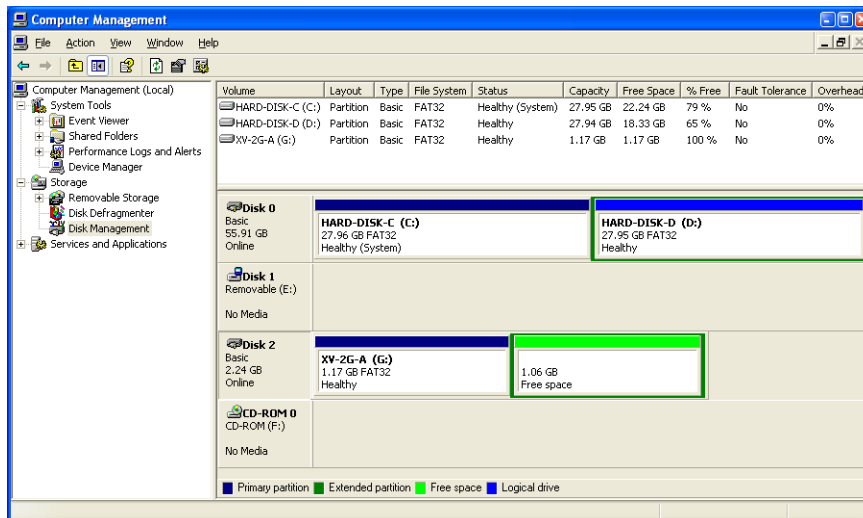
Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning and Formatting a Drive with Windows XP (continued)



The Extended partition is now created, but unlike a Primary partition which is created and formatted as a single logical drive in one step, we must create the logical drive in the extended partition and format it. Right-click on the Extended partition's Free Space area and choose *New Logical Drive* from the context-menu. This will launch the Wizard.



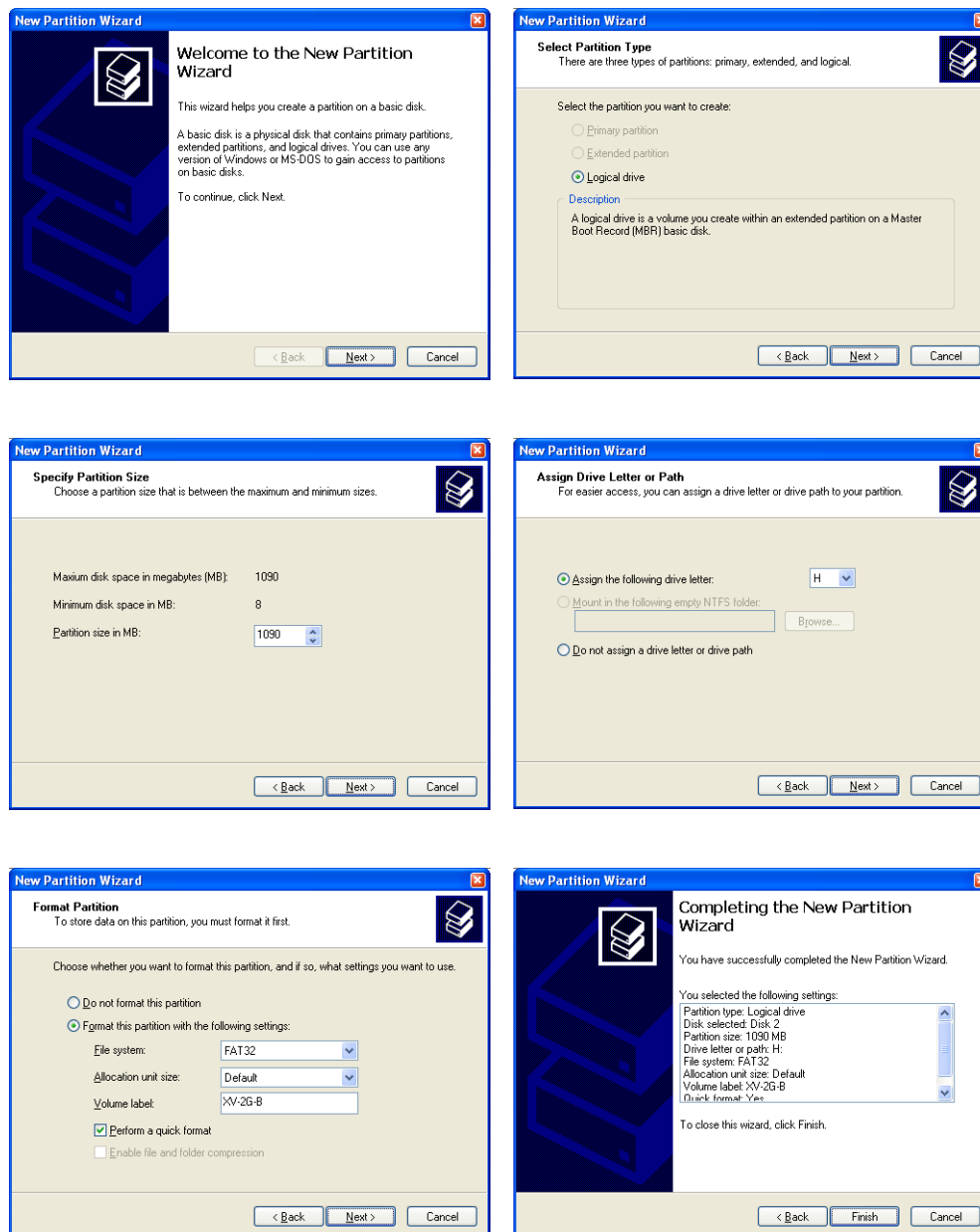
Preparing Media

Formatting or Initializing Media (continued)

Hard Drives (continued)

Partitioning and Formatting a Drive with Windows XP (continued)

The Logical Drive Wizard. Be sure to specify FAT32 as the Format File System.



Preparing Media

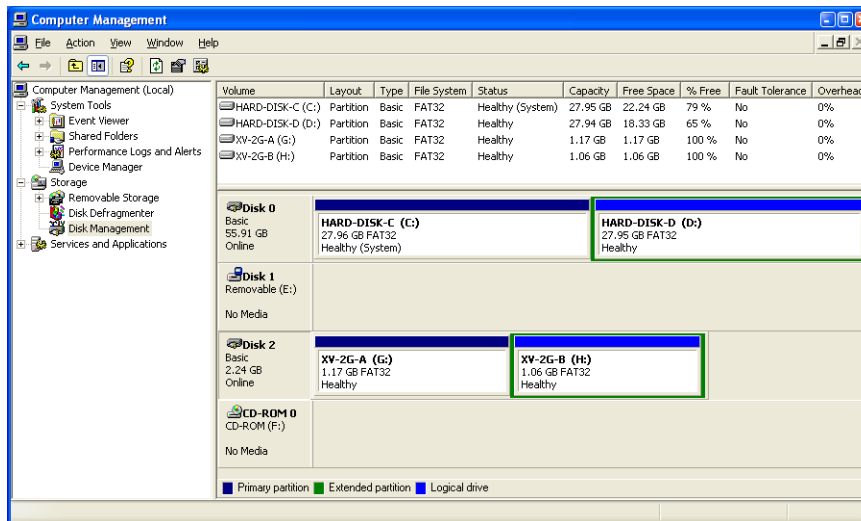
Formatting or Initializing Media (continued)

Hard Drives (continued)

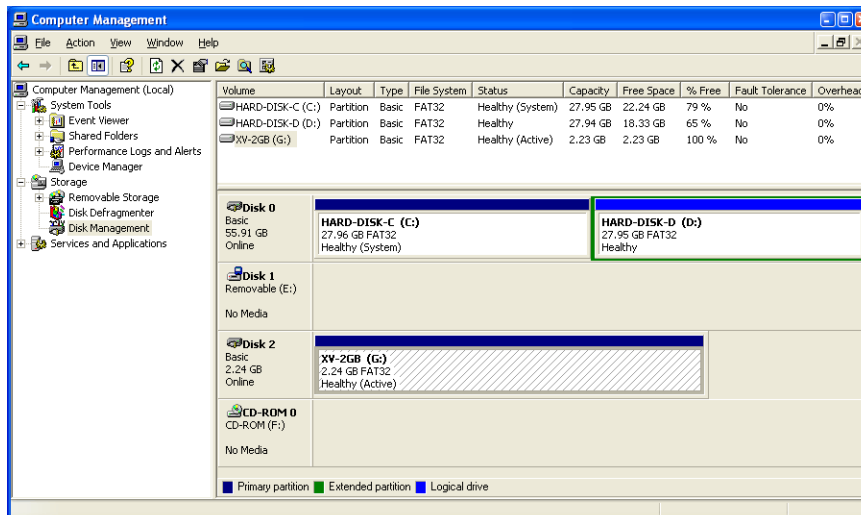
Partitioning and Formatting a Drive with Windows XP (continued)

Both partitions have now been created and formatted. This drive will now show on the XV-5080 as two distinct logical drives labelled *SCSIx P0 XV-2G-A* and *SCSIx P1 XV-2G-B*.

We can now shut down Windows XP, disconnect the SCSI drive and connect it to the XV-5080 for use.



Had we chosen to create one single Primary partition for the entire size of the drive, we would have a single logical drive in the Disk Management tool as shown here.



Preparing Media

Formatting or Initializing Media (continued)

Zip and Removable Drives

The XV-5080 supports numerous removable drive media, the more popular being the iomega Zip-100 and Zip-250.

This media is similar to a floppy disk, in that it uses a thin flexible disc encased in a plastic protective shell.

Zip media has a greater storage capacity than regular floppy disks, and uses a higher disc rotation speed for faster data access.

While not as fast as hard drives, Zip media provides a quick and efficient method of transferring data *bi-directionally* between the XV-5080 and a PC computer.

Formatting of Zip media can be performed on either the XV-5080 or a PC computer equipped with a Zip drive. The XV-5080 is fully compatible with PC Windows and MS-DOS Zip standards.

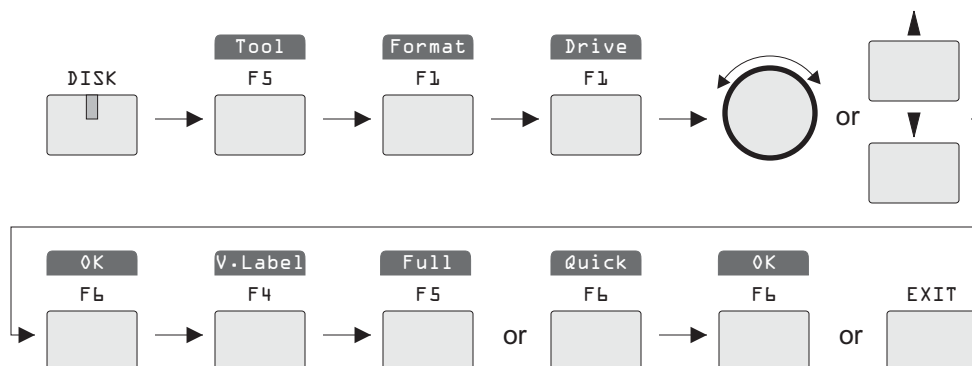
Unlike a hard disk, Zip media does not support multiple partitions. However, folders may be created to divide the data into logical locations on the media.

To format a Removable Media such as a Zip disk, follow these steps:

1. Press [DISK], lighting the indicator.
2. Press [F5](Tool).
3. Press [F1](Format).
4. Press [F1](Drive).
5. Turn the VALUE dial or press [▲] or [▼] to select the drive, eg: "SCSI1: Zip".
6. Press [F6](OK).
- If desired, you can change the Volume Label by pressing [F4](V.Label).*
7. Press [F5](Full) or [F6](Quick), the message "Format, OK?" appears.
8. Press [F6](OK) to proceed with formatting or press [EXIT] to cancel.

There are two types of formatting for Zip disks, *Full* and *Quick*. The Quick format simply erases all of the existing data, whereas the Full format actually formats each track of the media. If you choose Quick and the XV-5080 is unable to format the disk, then you will be prompted to choose a Full format.

The Quick format takes about 15 seconds with a Zip-100, the Full format requires about 9 minutes to complete.



See the XV-5080 Owner's Manual:
Pg.190 "Loading Data Saved on a Zip Disk"
Pg.200 "Saving All Data to Zip Disk"
Pg.200 "Formatting a Zip Disk/Hard Disk"
Pg.200 "Saving Data"
Pg.201 "Organizing a Zip Disk"
Pg.239 "Connecting a SCSI device"

Preparing Media

Formatting or Initializing Media (continued)

Zip and Removable Drives (continued)

Zip media is not as secure and reliable as Hard Disk or CD, so be sure to have backup copies of your work on other media formats if you use Zip disks. Zip media also uses a method of spare-sector error correction, preventing standard diagnostic tools such as ScanDisk from detecting defective media until it is too late. Surface verification tools that are Zip-specific should be used regularly to test the surface of the media for defects that occur from normal wear. Gibson Research Corporation has one such free utility called TIP for Zip and Jaz drives.

CD-R and CD-R/W Media

The XV-5080 does not include a feature for writing CD-R and CD-R/W media. However, it can read CD, CD-R and CD-R/W media that is formatted for Roland S-700 series samplers, Akai S-1000 and S-3000 samplers, plus it supports standard CD format for XV series data and Wav and AIFF audio files.

Standard CD format, compatible with PC computers, allows you to transfer XV, Wav and AIFF data from your PC to the XV-5080.

Using your CD burning software or the built-in CD writing support in Windows XP, simply create a standard disc that contains the desired Wav or AIFF files. Insert that disc into a CD drive on the XV-5080, and load the files in the same fashion as other media.

Supported Wav and AIFF types includes 8-bit and 16-bit, mono and stereo, 8k, 11k, 16k, 22k, 32k, 44.1k and 48k, with support for Loop Point data.

The [SYSTEM/UTILITY] includes a function that can create a default Patch from the Wav or AIFF data loaded into the SIMMs. See the XV-5080 Owner's Manual Pg.193.

See the XV-5080 Quick Start:
Pg.45 "Connecting the CD-ROM Drive"
Pg.46 "Loading Sampler Libraries (Patches)"

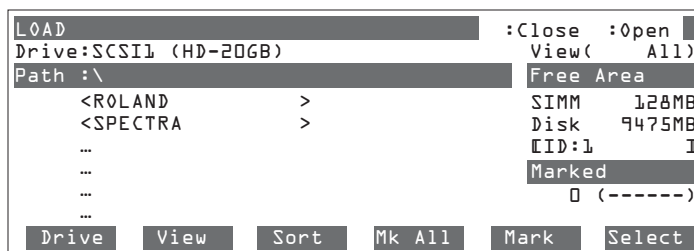
See the XV-5080 Owner's Manual:
Pg.181 "Loading Sampler Libraries (CD-ROM)"
Pg.185 "Connecting a CD-ROM Drive"
Pg.188 "Sample Load"
Pg.239 "Connecting a SCSI device"

Folder Management

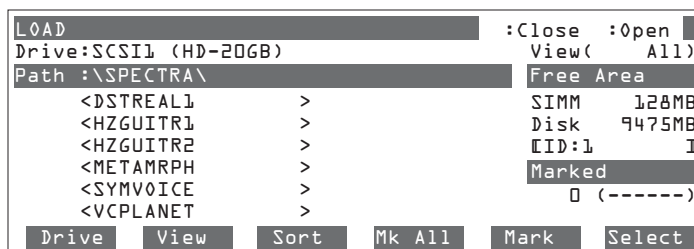
Disk Layout Preparations

Before you begin transferring the contents of your sample CD library to the XV-5080's Hard Drive, it is usually prudent to determine the best folder layout that provides ease-of-use and quick access.

One of the most efficient folder layouts begins with creating top-level folders for each of the various sample library Publishers.



Beneath each Publisher's folder, a separate folder will be created for each sample library Title that you have purchased from that Publisher.



Within each sample library Title folder, the patches contained on the disc(s) are in most cases easiest to divide up into their defined categories.

For example, the Roland L-CDP-13 String Sections CD contains

- Violins
- Violas
- Cellos
- ContraBs

So the most efficient and logical method of layout would be to create folders for the sample SVD files based on the instrument categories.

Otherwise it could get confusing if instead each SVD file was filled to its limit, crossing over categories. For example, if the first SVD file contained all of the Violins and the first four Violas, the second SVD file contained the remaining Violas and all Cellos except one, and the third SVD file contained the last Cello and all ContraBasses...

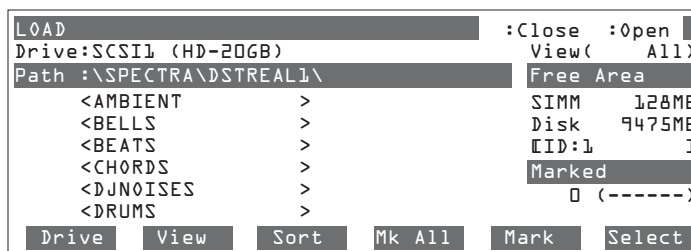
Locating or previewing all Violas in this specific example would then require multiple file accesses across the first two SVD files. Not particularly efficient.

Folder Management

Disk Layout Preparations (continued)

Using the Spectrasonics Distorted Reality 1 disc as an example, the category folders could be created to reflect the actual categories on the disc:

Ambient, Bells, Beats, Chords, DJNoises, Drums, Drones, Fuzz, FX&Misc, GuitarFX, Hits, Human, Mallet, Metals, Noise, Orch_FX, Pads, Pulsatng, Reverse, SynthBas, Sci-Fi, Sequence, Sound_FX, Sweepers, Synths, Tekno, Talk, and Voices.



Creating the categorical layout is usually a relatively easy task, since most of the Sample Library CDs are already listed in this manner within the liner notes of the disc. The Publisher has already taken the time to provide this information for you.

You will also enjoy the benefits of easier file searches using the disc's liner notes as a reference, since their category list will match up with your category folders.

Using Distorted Reality 1 as an example, the first category *Ambient* would include the following AMB category Patches from the disc :

001 CricketChoir
002 Crick Choir 2
003 Inhale
004 Mist
005 Solia
006 Solia Long
007 Frost
...
044 Voyage lp 3

You may have noticed in this example that the resulting Ambient.svd file and its corresponding Sample files contain a total of 24 Performances, 44 Patches, 0 Rhythm Sets and 65.4MB of sample Wav files.

While this does not approach the XV-5080's maximum single-Bank ability of 64 Performances, 128 Patches, and 128MB of sample files, as previously mentioned, the ability to manage the files by category are beneficial.

While this method may increase the total number of folders on the XV hard drive, it is not by an excessive amount. A 10GB drive will usually contain around 150 to 200 folders when filled with sample libraries.

Transferring Sample Libraries

Efficient Sample Management

As mentioned previously in this document, when the current data in the XV-5080 is saved to media, the entire User Bank area is written including the entire list of Performances, Patches and Rhythm Sets. This data is written as an SVD file and its corresponding SAMPLE folder.

Due to this functionality, when composing using sample-based sounds, the User Bank should be reserved specifically for the task of managing the sample-based sounds.

At first glance this methodology may seem to be without consequences, however, if you are performing a series of Sample Library transfers from one or more CDs to a Hard Drive, the previous contents of the User Bank area will usually not be overwritten or cleared in its entirety.

To better explain this, we'll look at a real example.

A factory-initialized User Bank contains a full set of Performances, Patches and Rhythm Sets. The default Patches include:

```
USER:001 Xtremities
USER:002 Y2K Concerto
USER:003 Amped Wurlie
USER:004 Mood Ringz
USER:005 Synchronicity
...
USER:128 Winky
```

Where we can start to run into confusion is after we load another category set from the Sample Library CD (Spectrasonics' Metamorphosis in this example). For simplicity, let's say this next category set included only three Patches, after loading them we would then have the following in our User Bank:

```
USER:001 53:Jewelz a
USER:002 53:Jewelz b
USER:003 53:Sonar
USER:004 Mood Ringz
USER:005 Synchronicity
...
USER:128 Winky
```

} *new category patches*

} *old patches from previous load*

When we then save this Bank to media, all of the existing non-relevant (non-Metamorphosis in this case) Patch names are also saved to the SVD.

If we expound upon this, and perform perhaps ten or twenty loads and subsequent saves, each with varying numbers of loaded Patches within each category set, the non-relevant "left over" Patch names in all of our saved SVD files starts to look like a real mess. Many of the SVD's may even have duplicate Patch names for Patches that don't actually exist within that Bank, making it difficult to locate and load Patches at a later date.

Transferring Sample Libraries

Efficient Sample Management (continued)

The solution to the "left over" Patch names is actually a simple one, but requires a few extra button-presses during the Sample Library transfer process.

Creating a custom User Bank where every Performance, Patch and Rhythm Set were default INIT versions whose names were all set to space characters, would give us a "blank slate" to always start from.

Using the XV-5080's [SYSTEM/UTILITY] Initialize feature along with renaming all entries as blanks, we can create an entire Bank with what appears to contain "nothing" in it.

See the XV-5080 Owner's Manual pg.202 for the steps required to Initialize Performances, Patches and Rhythm Sets.

A "blank" User Bank file in System Exclusive format can also be downloaded at no cost from the Li'l Chips Systems web site at www.lilchips.com.

Prior to transferring any Sound Library CDs to a hard drive, we simply load the blank User Bank into a SmartMedia card for quick and easy access. Our previous example would then become:

```
USER:001 53:Jewelz a
USER:002 53:Jewelz b
USER:003 53:Sonar
USER:004
USER:005
...
USER:128
```

Notice that Patches 004 through 128 have blank names, preventing any confusion as to which Patches are valid within this SVD file.

During the transfer process, get into the groove of:

1. load the blank User Bank from the SmartMedia card
2. load the next CD Category set into the User Bank and SIMMs
3. create the destination Category folder on the Hard Drive
4. save the Category set into the Category folder (SVD and SAMPLE)
5. repeat from step 1 until all of the sample data is transferred

Note that while loading the Category sets, you are limited to a maximum of either 64 Performance, 128 Patches or 128MB of SIMM memory, whichever comes first.

Saving Songs, Compositions, and temporary work

I strongly recommend that you use a separate Hard Drive or Zip media for storage of composition Performances, keeping them away from the same drive as the Sound Library data.

The XV-5080 does not include features such as defragmentation utilities, so constantly writing and deleting files will eventually impact the drive performance.

Computer Connectivity

Connecting XV Hard Drives to a PC

In most instances it should be safe to connect an XV-5080's Hard Drive to a PC computer equipped with a SCSI interface. Proper SCSI guidelines for termination and interface type must be adhered to.

If the PC and the XV-5080 are both simultaneously connected to the same SCSI Hard Drive, be sure to turn on the XV-5080's power to provide proper SCSI termination, but under no circumstances attempt to read or write from the drive using the XV-5080 Disk functions while the PC is connected.

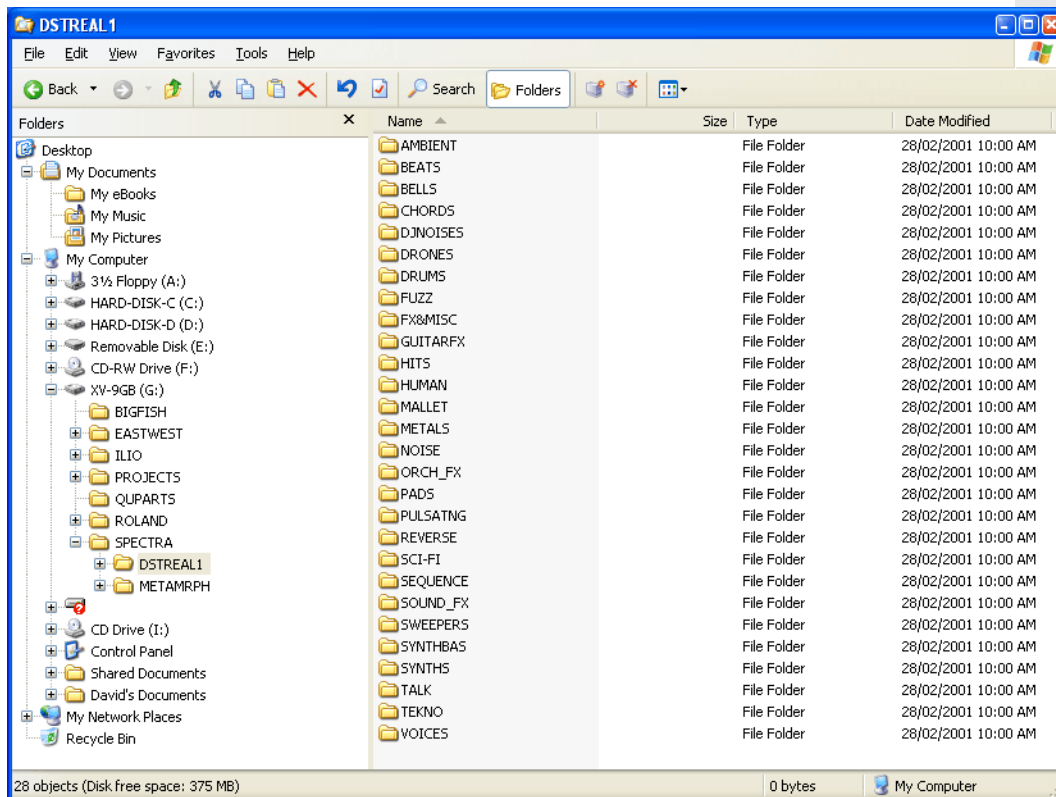
This type of inter-connectivity can facilitate operations such as data backup and transfer, drive defragmentation, etc.

Direct access to the Wav and/or AIFF sample files can also be managed through the Sample folder for each SVD file.

If Windows creates a Long Filename Table or a hidden Recycle Bin folder on the drive, this should not interfere with the XV-5080's use of the drive.

When connected to a PC running the Microsoft Windows operating system, the contents of the drive can be viewed just like any other FAT32 drive.

Windows Explorer allows for easy browsing of the drive contents.



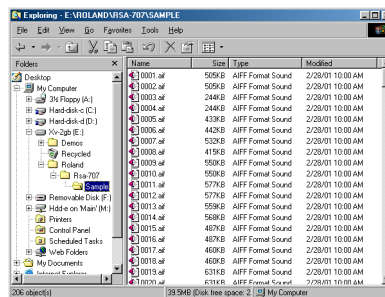
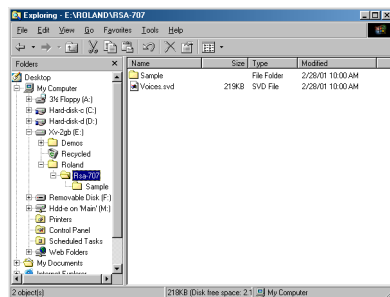
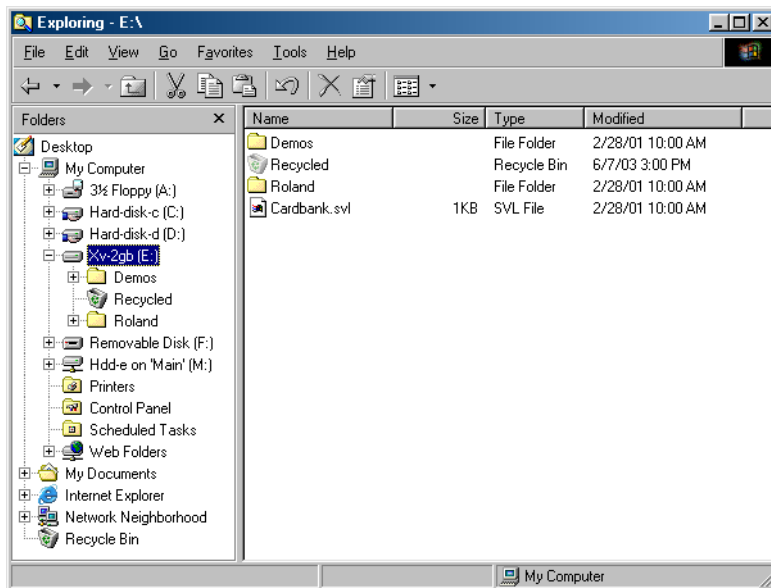
Computer Connectivity

Connecting XV Hard Drives to a PC (continued)

Even though the XV-5080 supports the same FAT32 drive format as a PC computer, the Windows Long Filename system is not supported.

When writing or modifying files on an XV-5080 hard drive from a PC, be sure to never name files in any format other than standard DOS 8.3 style.

This method uses eight characters for the file name and three for the extension. If a long filename is used, it will be displayed on the XV-5080 as xxxxxx~1.xxx, which can cause confusion between files.



Sample Archiving

Storing Libraries on a PC

A definite positive to the XV-5080's support of the FAT32 disk system is that all sample libraries that have been converted to native XV-5080 format and stored on a SCSI or SATA hard drive can then be easily transferred to a PC for archival storage.

It is strongly recommended that any purchased sample library be converted to native XV-5080 format and then transferred to a PC for library archiving. Once copied to a PC hard drive, compression utilities such as WinZip or WinRar can be used to reduce the total library file size.

By storing an archival backup of your library, should your XV-5080's hard drive ever fail it is a simple matter to format a new drive and then transfer all of the archived library back to the new drive.

Using SATA Drive Hardware

Using SATA Drive Hardware

Computer hardware evolves quickly and due to this fact it usually doesn't take too long for any computer based equipment to become aged or obsolete, even the XV-5080 is not immune to the passage of time.

Regarding this fact, the 128MB SmartMedia cards and SCSI-1 Hard Drives are becoming rare accessories. Some users have had success with using CompactFlash to SmartMedia adapters in order to extend the life and usability of the XV's card interface. This chapter will cover a method used to successfully attach current SATA Hard Drives to the XV's aging SCSI-1 Interface.

There are additional advantages to using SATA Hard Drives over the older SCSI-1 type, which includes: better availability, cheaper price, faster speed, lower noise, lower power requirements, less heat, smaller size if a 2.5" drive is chosen, and most importantly if a SSD drive is chosen then there is no noise with no moving parts and very fast access times.

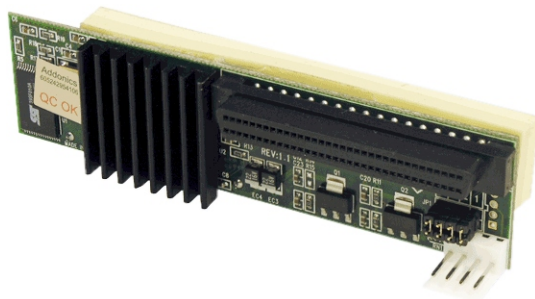
Both standard magnetic and SSD (Solid State Drive) hard drives have been tested in this configuration with equal success.

Keep in mind that the newer SATA drive may not improve the XV's read/write speed depending on your current setup, but it will often improve the access time.

Required Components

All of the required components are standard off-the-shelf adapters and convertors available from one or more electronics distributors. In total, all that is required is a SATA-to-SCSI I/O Convertor and a 68-pin SCSI LVD male to 50-pin SCSI male adapter, along with the SATA Hard Drive of your choice.

Addonics ADSALVD160 SATA to SCSI Convertor available from addonics.com.



SCSI 50-pin IDC Male to SCSI 68-pin LVD MicroD Male adapter.

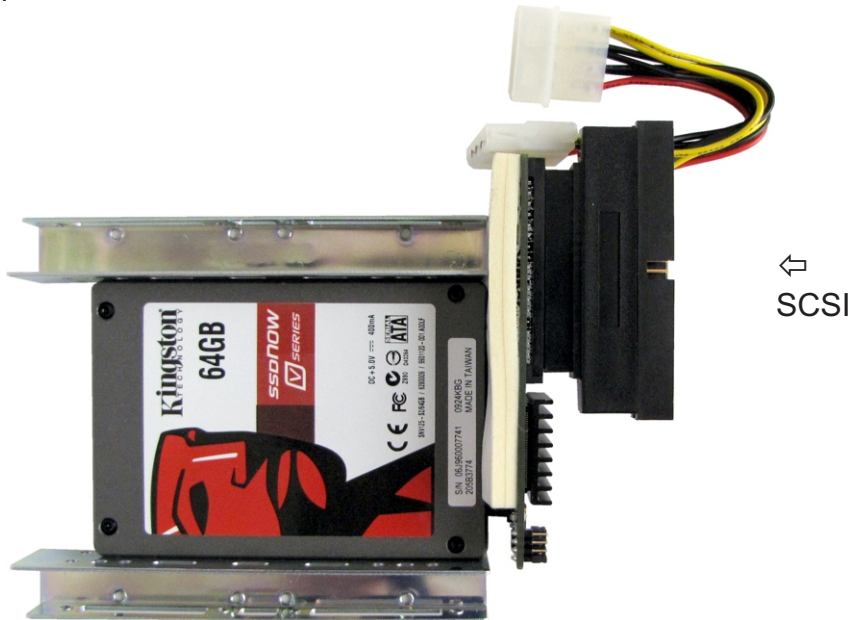


Using SATA Drive Hardware

Assembling the Hardware

Assembling the SATA to SCSI system is very easy since it is using all standard components that simply snap together.

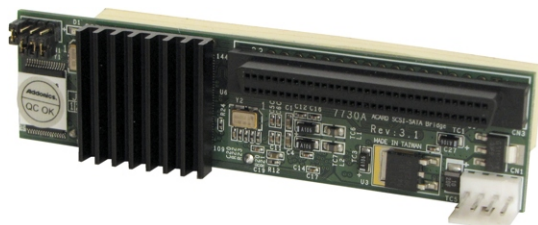
1. Connect the SATA hard drive to the SATA connector on the Addonics convertor board.
2. Connect the 68-to-50 adapter to the SCSI connector on the Addonics convertor board.
3. Plug the included molex-to-floppy power adapter cable onto the Addonics convertor board and then to the power supply connection on your SCSI drive case or CD-Rack.
4. Connect the 50-pin cable from your SCSI drive case or CD-Rack to the 50-pin adapter.



Note: The Addonics ADSALVD160 Converter has a few different component layouts depending on the board revision. Notably the SCSI ID jumper block is in different locations and the SCSI ID numbering order direction changes.

The Rev 1 board shown on the previous page has the jumper block located above the power connector, and a jumper block order of 8421.

The Rev 3 board shown below has the jumper block on the top left and a jumper block order of 1248, with the example photo set to SCSI ID 1.



Using SATA Drive Hardware

Partitioning and Formatting

Preparing SATA hard drives for use with the XV-5080 is similar to those drives covered in a previous section, the main difference is the availability of larger SATA drive sizes which requires multiple partitions.

Partitioning and formatting with the XV-5080

The XV-5080 will format up to a 64GB SATA drive and create a single partition with 32K clusters. 120GB through 320GB single partition drives have not been tested. 500GB drives must be partitioned and formatted under Windows. Attempting to format a single partition 500GB drive on the XV-5080 will cause the XV to crash, this is due to the XV-5080 formatting it as a single partition with 32K clusters resulting in a file table that is too large for the XV to manage.

Partitioning and formatting with Windows

Partitioning and formatting SATA drives under Windows requires the use of the Disk Management tool found in the Computer Management area.

When preparing drives under Windows, each partition is limited to 32GB (32768MB) with a total of four (4) partitions per drive, this is by design from Microsoft for FAT32.

The following limits are placed on Windows FAT32 (see MSKB Q184006):

- Clusters cannot be larger than 32K.
- Volumes larger than 32GB in size cannot be formatted.

When preparing a drive with Disk Management, the default partitioning and formatting values are:

- default 16K clusters
- maximum 32GB partition (32768MB)
- maximum 4 partitions per drive
- maximum available space of 128GB (4x 32GB)

You cannot successfully override these values and limits by using custom formatting utilities and it is not recommended that you attempt to do so.

Due to the maximum useable space of 128GB there is little reason to use SATA drives larger than 160GB, although larger drives will work but will have unused space past the four 32GB partitions.

Drives with multiple partitions are supported on the XV-5080 and are shown in the Drive menu as the SCSI ID number followed by the partition number and name:

```
Drive
  SCSI0:
  SCSI1:P0 PARTITN0
  SCSI1:P1 PARTITN1
  SCSI1:P2 PARTITN2
  SCSI1:P3 PARTITN3
Eject      Refres      OK
```

Supported Hardware

RAM SIMM Memory

Supported SIMMs are 72 pin, 16/32/64MB (sizes can be mixed), 5 volt, FPM (Fast-Page-Mode) or EDO (Early-Data-Out), 60ns or faster, Parity or Non-Parity, 36mm maximum height. 8-chip Non-Parity Mac style SIMMs usually function best.

Buffalo	VMH-64LS(EDO)	32MB x 2 pcs.
Delkin	SM072-032P5244-7	32MB
	SM072-064E5464-6	64MB
Green House	GH-32E16MA/60-64	64MB
	GH-S3216MA/60-64	64MB
	GH-S328MA/60	32MB
	GH-32E8MA/60	32MB
	GH-32E4MA/60	16MB
K-Tech Devices	MD64E72A60	64MB
	MD32E72A60	32MB
	MD32NP72A60	32MB
	MD16E72A60	16MB
	MD16NP72A60	16MB
Logitec	LSM-32A6(FP)	32MB
	LSM-32A6x2EDO	32MB
Princeton	PD72E-64	64MB

By IC Part Number:

Siemens HYB5117405BJ-60	32MB 16-chip Double-sided	no parity
MT 4LC16M4H9 -5 F	64MB 8-chip Single-Sided	EDO, no parity

Supported Hardware

SmartMedia Cards

Supported SmartMedia includes 3.3 volt and 5 volt, from 2MB through 128MB.

Roland SM series Memory Expansion Cards

SanDisk 8MB-3.3

SanDisk 16MB-3.3

SanDisk SDSM-128 128MB

Supported Hardware

SCSI Hard Drives

Most SCSI-1, SCSI-2, and Ultra-SCSI Drives will work. SCSI-Wide Drives will require an adapter to convert to Narrow, or if the drive has the facility to set this via jumper. Standard interface connectors are 50, 68, and 80-pin, and may require adapters.

Fujitsu	M2952QAU	3.5" 2.4GB 7200RPM 68-pin Fast-20Wide SCSI-2 8ms Set Jumper CN-10 to pins 1/2=open 3/4=short for Narrow SCSI Requires standard 68-to-50 Adapter www.fujitsu.com
I-O Data	HDVS-UM8.4G	
Melco	DSC-UE Series	
Necoda	240NZ	
Quantum	Atlas V 9.1L	3.5" 9GB 7200RPM 68-pin Ultra160/LVD/SE 6.3ms Set J3 Option Header (front) pins 23/24=short for No Wide Set J1 (rear) or J3 (front) A0 through A3 for SCSI Address Requires standard 68-to-50 Adapter www.maxtor.com
Quantum	Fireball 1080S	
Quantum	TrailBlazer 840S	3.5" 840MB 4500RPM 50-pin SCSI-2 14ms
Seagate	Hawk ST32155W	3.5" 2.1GB www.seagate.com
Seagate	ST15150N	3.5" 4GB
Seagate	Barracuda ST39173N	3.5" 9.1GB 7200RPM 50-pin SCSI-2
Seagate	Cheetah ST336704LW	3.5" 36.7GB 10,000RPM 68-pin Ultra-160 5.4ms

Supported Hardware

SATA Hard Drives

Most SATA-1 and SATA-2 Magnetic and SSDs (Solid State Drives) will work.
SATA Drives require the special hardware setup as shown in the *Using SATA Drive Hardware* chapter.

Kingston	SSDnow V-Series	2.5" 64GB SSD SATA-2 www.kingston.com
Western Digital	WD5000AAKS Caviar SE16	3.5" 500GB 7200RPM SATA-2 www.westerndigital.com

Supported Hardware

CD-ROM CD-R CD-R/W Drives

Most SCSI-1, SCSI-2, and Ultra-SCSI Drives will work. The XV-5080 cannot burn CD-R or CD-R/Ws.

CyberDrive		24x
JVC	XR-W2042	CD-R/W
Matshita	CW-7501	CD-R
Matshita	KME 07	CD-ROM
NEC	CDR-500	CD-ROM
NEC	Intersect CDR-73	CD-ROM 1x CD-ROM compatible only, can't read CDR or CDRW discs www.nec.com
Pioneer	DR-966	40x www.pioneer.com
Pioneer	DR-U24X	CD-ROM
Pioneer	PCP-PR1	CD-ROM
Pioneer	PCP-PR2	CD-ROM
Pioneer	PCP-PR24	CD-ROM
Plasmon	CDR4240e	CDRW 2x write 4x read www.plasmon.com , www.plasmontech.com
Plextor	PX-40TS	CD-ROM
Plextor	PX-W4220T	CD-R/W
Toshiba	XM3701TA	CD-ROM
Toshiba	XM5301TA	CD-ROM
Toshiba	(T)XM6201B/F1	CD-ROM 32x CD-ROM, CDR, CDRW compatible www.toshiba.com

The following drives may have problems working with the XV-5080

Plextor	PX-W1210TS	CD-R/W (Roland CD-RACK)
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Supported Hardware

Removable Drives

Most SCSI-1, SCSI-2, and Ultra-SCSI Drives will work.

Castlewood	Orb	3.5" 2.2GB cartridge www.castlewood.com
iomega	Jaz 1GB	
iomega	Zip-100 Z100SI	3.5" 100MB disk www.iomega.com
iomega	Zip-250	3.5" 250MB disk
LaCie	ZFP 88MB	5.25" 88MB Removable Cartridge (SyQuest SQ800) SyQuest SQ5110 mechanism Tested with 88MB Cartridges, Cartridge formatting not tested www.lacie.com , www.syquest.com
Matshita	LF-D102	DVD-RAM
Matshita	LF-1600	PD
Necitsu	MOF-640	MO
SyQuest	SyJet 1.5GB	3.5" 1.5GB cartridge www.syquest.com

Random Notes

Media Card Banks

The XV-5080 defaults to using the first eight card banks as Card A through H. To use other card banks they must first be registered.

Optimizing Effects

Drive the Effects Sends at 127 and adjust the Effects Out levels lower to improve the noise level and obtain better quality effects.

Imported AIF and Wav Sample Rates

The XV-5080 can load 8kHz through 48kHz AIFF and Wav sample files, in 8-bit and 16-bit depth, in mono or stereo formats.

Rates below 15kHz are converted to 15kHz.

The 8000 and 11025 sample rate files will show in the [F2](WG) -> [F3](SAMPLE) screen as 15.0kHz rate.

The other supported rates show as 16.0kHz, 22.05kHz, 32.0kHz, 44.1kHz, and 48.0kHz.

The XV-5080 does not show the source bit-depth as all loaded files are converted to 16-bit.

Loop Point is supported but the default is One-Shot and the Original Key is always C4 unless the Wav file contains additional waveform information.

A file that includes a Loop Point and Original Key value will properly import these values in XV OS version 1.30 and higher.

For CoolEdit and Adobe Audition, see the View menu Sampler Info dialog.

When saving the waveform, be sure to check the [x] *Save extra non-audio information*.

When working with Wav files on Zip or CD-RW media, be sure to always REFRESH the Drive display when you insert a disk otherwise you may encounter an Illegal Format error. You should perform the refresh even if you have only updated the files on the same disk or re-inserted it into the XV drive.

Mixing Sample Rate in a Performance

The XV-5080 supports mixing of sample rates from 8kHz to 48kHz.

The real-time SRC (Sample Rate Conversion) is very good, but not transparent, some conversion errors are imposed onto the waveforms, but not excessively.

XV-5080 Data Files

Files must be in native XV-5080 format for auto-load, otherwise a MEMORY ERROR message will occur.

All files must be 8-bit or 16-bit and 8kHz through 48kHz otherwise a load error will occur. In other words, it cannot load 24-bit or 96kHz files.

Files are always sum-checked, so if you are encountering glitched data such as errors in partial names, then look at defective SIMM RAM or Internet RAM.

Random Notes

Fixed versus Removable Media

Removable media always has startup delay time, hard drives do not.

The XV-5080 supports SCSI-1 which has a maximum transfer rate of 5MB per second, however, the actual XV throughput is commonly around 1MB to 1.5MB per second.

A 7200RPM hard drive is about twice as fast as a Zip-100.

A 32x CD is about the same speed as a hard drive.

SCSI Data Transfer Speed

A 9.1GB Ultra-160 7200RPM hard drive takes approximately 135 seconds to transfer 77MB, which is a speed of about 1.75MB per second.

PC SCSI Connectivity

SCSI devices require an ID, which range from 0 to 7 for SCSI-1 and SCSI-2, and Ultra SCSI adapters may support IDs from 0 to 15.

Many PC PCI SCSI adapters are preset to ID 7, this is also the default ID of the XV-5080. It is usually easier to change the XV-5080's ID by turning the ID knob on the back of the unit.

When connecting an XV-5080 directly to a PC SCSI interface, Windows XP will launch the New Hardware Found Wizard for the "XV-5080 SCSI Device". Since there are currently no hardware drivers available for the XV-5080, simply cancel the wizard.

The XV-5080 will not show up in Windows Explorer or the Computer Management tools such as Device Manager.

Likewise, the PC will not show up on the XV-5080's startup SCSI scanning screen, the PC will always show as no detected device "--".

