

Pinnacle Pro-ONE

Technical Specification and Compatibility Guide

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Introduction

Pinnacle Pro-ONE is a PC based non-linear video editing solution offering DV quality and real-time video/audio processing.

Pinnacle Pro-ONE provides the classical workflow for non-linear video editing, featuring the industry standard edit application Adobe Premiere.

Beside analog and digital inputs and outputs Pinnacle Pro-ONE supports various modern distribution formats like DVD, CD and web streaming.

The core element of Pinnacle Pro-ONE is a video effects engine that processes even complex edits and effects in real-time.

Technical Specification

Pinnacle Pro-ONE is a full length PCI card that contains all the video and audio processing components. To connect Pinnacle Pro-ONE with video devices a breakout box and a DV/1394 cable are included.

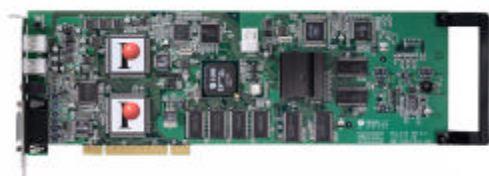
Pinnacle Pro-ONE can be used under the operating systems Windows 98 SE and Windows Millennium.

In order to use the hardware a set of Premiere plug-ins controls all functions via device drivers that get loaded during system boot up.

Pinnacle Pro-ONE features a Pinnacle proprietary software interface called RAL/HAL. Applications that just support standard interfaces like Video for Windows or Direct Show will not work with Pinnacle Pro-ONE if they try to capture, do real-time effects processing or print to tape. There is no SDK available to support RAL/HAL within other applications.

All product features and functions are available from within Adobe Premiere and Pinnacle DVTools.

Pinnacle Pro-ONE Hardware Components



PCI Board



Breakout Box



DV/1394 Cable

Technical Data

Hardware: 32 bit PCI bus mastering expansion card, full length

Video Data Rate: Two streams of DV data (25 Mbits per second per stream)

Frame Rate: 29.97/25 frames, 59.94/50 fields per second (NTSC/PAL, US Version NTSC only)

Digitisation and Playback: In real-time. 720x576 (PAL) or 720x480 (NTSC) in 4:2:0 YUV (PAL), or 4:1:1 YUV (NTSC) true color

Video Inputs:

1x Composite video (CVBS), RCA (cinch) jack, high quality PAL comb filter

1x S-Video (Y/C) mini DIN

2x IEEE 1394 (FireWire/iLink) six pin connector, external

1x IEEE 1394 (FireWire/iLink) six pin connector, internal

Video Outputs:

1x Composite video (CVBS), RCA (cinch) jack

1x S-Video (Y/C) mini DIN

2x IEEE 1394 (FireWire/iLink) six pin connector, external

1x IEEE 1394 (FireWire/iLink) six pin connector, internal

Video Standard: PAL, NTSC, (US Version NTSC only), Widescreen 16:9

Video Systems: DV, DVCAM, Digital8, S-VHS, Hi8, VHS, Video8

Real-time effects: Multi channel mixer for 2D and 3D image manipulations. Blend, key, scale, rotate, bend, map, transform, lighting, colorization, particles. Real-time multi-track audio mixer.

Video overlay: Video overlay chip for real time monitoring on computer screen

Audio inputs/outputs

Input: Stereo, 2xRCA (cinch) jack

Output: Stereo, 2xRCA (cinch) jack; stereo 3.5 mm jack

Audio input/playback level

Input: 0dB, adjustable from -50 ... +12dB

Output: 0db, adjustable from 0 ... - 60 dB

Audio recording and playback

In real-time directly to/from hard disc in full CD/DAT stereo audio quality

System Resources: Interrupts

Although Pinnacle Pro-ONE contains four separate PCI devices, it only allocates one IRQ line on the PCI bus. This IRQ is shareable with other PCI boards. However, IRQ sharing is not recommended as many other PCI devices do not support it fully.

System Resources: Memory-mapped I/O

Several non-shareable memory areas

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Real-time video editing is one of the most demanding tasks that a PC can perform. During playback from the Premiere timeline, two video streams plus titles and graphics are streamed from the hard disk, while the CPU and the Pinnacle Pro-ONE hardware work together to create real-time 3D effects. Simultaneously, several audio streams may be filtered, resampled and mixed in real-time. During these operations, Pinnacle Pro-ONE may move more than 50MBytes of data through the system each second.

Such performance does require care when selecting the components for a system. Pinnacle has tested a range of PC hardware and we strongly urge you to use only certified components when building your system.

Minimum System Requirements

- Pentium III, IV or Athlon processor, 700 MHz or faster
- 1 x 32-bit PCI 2.1 slot
- 128 MByte RAM
- 500 MByte hard disk capacity for installation
- Separate system hard disk
- 20 GByte dedicated A/V rated video hard disk
- High Color AGP display adapter with DirectDraw drivers
- CD-ROM drive for installation
- PCI Sound board
- External video monitor or TV set
- Video device, DV camcorder
- Windows 98 SE, ME

Hardware Components

Processor

The following processors are compatible with Pinnacle Pro-ONE:

- Intel Pentium III, 700MHz or higher
- Intel Pentium IV
- AMD Athlon, 700MHz or higher
- Intel Xeon

The following processors are not compatible with Pinnacle Pro-ONE:

- Intel Celeron
- AMD Duron
- Intel Pentium II
- AMD K6-II
- AMD K6

Main Memory

Pinnacle Pro-ONE requires at least 128 MBytes of system memory. A specific type of memory is not required. However, we strongly recommend using only brand-name memory modules. Pinnacle Pro-ONE sometimes transfers over 50 MBytes/sec through

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the system and this requires memory modules that adhere to the required timing specifications. We have found that cheap, non-branded memory sometimes does not meet the specifications and can fail in such a demanding applications as video editing.

Motherboards

One crucial element for the performance of Pinnacle Pro-ONE is the amount of data that it can transfer over the PCI bus per second. The mainboard and the chipset that it uses mainly determine this “PCI bandwidth”. Pinnacle Pro-ONE sometimes requires over 50MBytes/sec of data transfer rate when it plays two video streams, bitmaps and a complex 3D effect.

Incompatible mainboards will in the best case cause dropped frames during playback. However, they can also prevent simple capture from working or can cause frequent system crashes. **We thus urge you to use only Pinnacle certified mainboards** - please see the appendix for a list and check our website for updates.

An important part of every mainboard is the system BIOS. This is a piece of software that sits in a chip on the mainboard and runs during the startup of the system. It is responsible for initializing all components and loading the operating system from hard disk.

In case of problems with Pinnacle Pro-ONE please check if the revision of the BIOS of your mainboard is identical with the revision that was used when the board got certified. In case of general issues with the whole system we recommend that you check the website of the manufacturer of your mainboard for BIOS updates regularly.

The system BIOS also sets parameters responsible for the performance of the PCI bus. We have found that in many cases, these parameters are not set in an optimal way. Thus, Pinnacle Pro-ONE includes a tool called Pinnacle PCI Performance Enhancer (“PPE”), which optimizes the chipset parameters for highest PCI throughput.

Graphics Adapters

Processing graphics or video is quite similar. Therefore both applications often use the same system resources. Under some circumstances they can influence each other and share processing time and bandwidth. This may result in dropped frames during capture and/or playback. In some cases, Pinnacle Pro-ONE may not work at all.

In addition, Pinnacle Pro-ONE uses the PC graphics adapter to provide a preview of the video within Adobe Premiere. Although the interface that is used for this preview is standardized, there are still some graphics boards that do not support it.

Pinnacle has tested a range of popular graphics boards, as listed in the appendix. Please note that you should make sure to use the graphics adapter driver as listed, because other drivers have not been tested and may not work!

AGP vs. PCI and onboard controller

Pinnacle Pro-ONE is not compatible with graphics adapters that are integrated into the mainboard chipset. These adapters take bandwidth away from system memory so that the remaining performance is insufficient for the operation of Pinnacle Pro-ONE. For the same reason, Pinnacle Pro-ONE will also not work with PCI graphics adapters – **it requires a graphics board in the AGP slot.**

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Primary vs. Overlay Modes

To create the video preview within Adobe Premiere, Pinnacle Pro-ONE supports two different modes of display, called *Overlay Surface* and *Primary Surface*. These may be changed in the Pinnacle Pro-ONE settings dialog: right-click on the INSTANT Video RT window, select *Settings* in the menu and then the *General* tab.

Primary Surface means that video data for preview is transferred from the Pinnacle Pro-ONE hardware directly into the visible area of the graphics adapter memory. With *Overlay Surface*, the data takes a detour: it is first moved into an invisible area of the graphics adapter memory. Then, the graphics adapter itself copies it into the visible area.

In general, the main reason for having a choice between *Primary* and *Overlay Surface* is that some graphics adapters are compatible with only one of the modes. If both modes work on your system, we recommend to select *Overlay Surface*, as it typically uses slightly less system resources.

Resolution and Color Depth

The minimum resolution required for Adobe Premiere and Pinnacle Pro-ONE is 1024x768, as some dialogs will not fit onto the screen at smaller resolutions.

The minimum color depth is 16 bits per pixel (65536 colors). The video preview of Pinnacle Pro-ONE will not work correctly at 8 bits per pixel (256 colors).

Some graphics adapters allow you to select 15 bits per pixel (32768 colors) – we do not recommend to use this setting, as it sometimes causes color distortions.

Pinnacle Pro-ONE generally also works with graphics adapters set at 24 or 32 bits per pixel (“true color”), although there are rare cases where this has caused problems with the video preview.

Dual-head Graphics Adapters

Pinnacle Pro-ONE also works with popular dual-head graphics adapters as listed in the appendix. However, it should be noted that the video preview (overlay) of Pinnacle Pro-ONE will generally work only on the *primary* monitor, not the secondary one.

For dual-head graphics adapters, it is extremely important to use the drivers that we tested. We have often found that older driver versions will not support the video preview feature at all or cause other incompatibilities.

CAD Graphics Adapters

Specialized 3D CAD graphics adapters are in many cases not compatible with Pinnacle Pro-ONE, as they often do not support the video preview feature.

Drivers for NVIDIA cards

If you use a graphics adapter based upon an NVIDIA controller, we strongly recommend that you use a driver from NVIDIA and not the driver that the manufacturer of the board supplies. Driver updates from NVIDIA are available on their website at www.nvidia.com.

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Sound Boards

We have seen little compatibility issues with PCI sound boards. Also, sound adapters on the mainboard generally work well. However, ISA sound boards should be avoided, as they can cause performance problems.

For best compatibility, we recommend that you only install the Windows-supplied drivers with your sound board. The other software supplied by the manufacturer of the sound board can sometimes interfere with Pinnacle Pro-ONE – do not install it if you don't absolutely need it.

Network Adapters

There are no known issues with network adapters. However, please make sure to not transfer large amounts of data via the network while you are capturing or playing video.

It is not recommended to access video files for playback or capture through the network, as the bandwidth is typically not sufficient.

USB Devices

We have had reports that some USB devices cause problems during DV capture or print-to-tape operations. We recommend that you disconnect any USB devices you do not need if you experience dropped frames during capture or play,

IEEE1394 Devices

Pinnacle Pro-ONE is currently not compatible with 1394 devices other than DV camcorders and decks. You cannot connect 1394 hard disks, scanners, printers etc.

If you absolutely need to support other 1394 devices, we recommend that you use a separate PCI 1394 adapter. However, it is currently unclear whether or not you can use a 1394 hard disk with Pinnacle Pro-ONE.

Hard Disks and Controllers

Pinnacle Pro-ONE will work just fine with the standard IDE hard disk controllers on your mainboard. As a matter of fact, we no longer recommend that you invest into SCSI or IDE RAID arrays. A second IDE drive reserved for video editing is the most cost-effective way to build your editing system and also has the least risk of compatibility issues.

IDE Controllers

Standard (non-RAID) mainboard IDE controllers work fine with Pinnacle Pro-ONE, if DMA mode is activated (see troubleshooting section) and a separate hard disk is used for video. If you have other, slower IDE devices in your system (e. g. DVD or CD drives), make sure to put them on a different IDE channel.

We have had some problems with IDE RAID controllers on the mainboard or on separate PCI boards. We currently do not recommend that you use them with Pinnacle Pro-ONE.

SCSI Controllers

There are currently no known issues with SCSI controllers. Note however that SCSI is not required for Pinnacle Pro-ONE; IDE controllers and drives are quite sufficient.

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Hard Disks

For dual stream playback plus graphics and real-time effects it is crucial to have fast enough hard disks. During real-time effects playback, Pinnacle Pro-ONE processes multiple streams of data that can sum up to a peak data-rate of over 50 MBytes/sec. The usual net data rate for dual stream playback with transitions but without graphics is about 8 Mbytes/sec with graphics the net data rate can easily reach 20 MBytes/sec. Pinnacle Pro-ONE plays two video streams, a graphics stream, a so called alpha stream with transparency information and multiple 3D geometry data streams.

Especially between two timeline segments peak data rates can be extremely high due to the starting of, for example, two clips, one title, up to three effects plus several 3D object descriptions. They all get loaded from hard disk and transferred onto the Pinnacle Pro-ONE hardware at approximately the same time.

For sufficient playback performance the available bandwidth should be even higher than the net data-rate, to have enough headroom for peaks. It's a good idea to plan for 50% more bandwidth than required for video playback. This would result in a hard disk system that is capable providing a **continuous sustained data-rate of 30 MBytes/sec** for complex projects. Due to the fact that the hard-disks heads get repositioned between the video clips all the time a short access time is required, too.

Whereas in the past only SCSI systems could deliver this bandwidth meanwhile some modern eIDE-UDMA disks (DMA 4 or 5) are also capable of providing these data rates when they are installed as a single disk per IDE port. The IDE interface has some limitations when more than one device is connected.

Only carefully assembled and configured IDE systems will provide the full performance. It's recommended to test each system at least for 1 hour of dual stream playback with effects before it gets used for video production.

Hard Disks – Rules of Thumb

For best results **it is recommended to use hard disks with 7 200 rpm** or more. Hard disks with 5 400 rpm are the absolute minimum and under heavy load they may be too slow.

Access time should be less than 8 ms.

One hour of DV material (video and audio) requires a capacity of 12 GBytes. Usually the available capacity for editing should be two times larger than the space needed for the length of the source material. In this example, the disk should have 24 GBytes storage space.

Software

Operating System

Pinnacle Pro-ONE has been tested with **Windows 98 SE** and **Windows Millennium**.

All compatibility information is only valid for these operating systems. Pinnacle Systems does not guarantee any operation or product features under Windows 98 First Edition (also known as Windows 98 Gold).

Support for Windows 2000 will be available with support for Windows XP. In order to develop just one driver for both operating systems the driver for Windows 2000 is not available yet.

Other Software Applications

To achieve its performance, Pinnacle Pro-ONE uses a proprietary software architecture that is not based upon Video for Windows, nor DirectShow. This means that other software applications will not work with Pinnacle Pro-ONE if they try to capture, edit with real-time effects or play video to the analog outputs.

However, the AVI files that Pinnacle Pro-ONE writes and reads are standard Microsoft "Type 2" DV AVI files. They are thus compatible with a wide range of other applications, as long as these can handle standard DV AVI files.

Pinnacle Pro-ONE also provides a Video for Windows-compatible codec "wrapper". Applications that expect a Video for Windows codec can use the Pinnacle Pro-ONE codec to display and encode DV video.

On systems where the Pinnacle Pro-ONE hardware is not installed, the Pinnacle DV codec will not be available. As an alternative, another DV codec may be used here, for example the Microsoft-supplied DirectShow DV codec, which is part of DirectX and is supported by some applications automatically.

The Microsoft MediaPlayer will play DV AVI files captured or exported with Pinnacle Pro-ONE. Note that the Pinnacle Pro-ONE settings dialog has an option that also enables the analog video output of Pinnacle Pro-ONE when playing through MediaPlayer.

Troubleshooting

IDE Hard Disk DMA Transfer

If you use an IDE hard disk for video storage, then it is absolutely required that Direct Memory Access (“DMA”) transfer is activated for this hard disk.

To do this, open the Device Manager (via Control Panel - System) and click on the plus sign next to *Disk Drives*. Double-click on one of the hard disk symbols and select the tab *Settings* in the window that appears. Make sure that the checkbox *DMA* is enabled here.

If you cannot enable this checkbox, please make sure to install the latest drivers for your hard disk controller or for your mainboard, if the hard disk controller is located there.

PPE

As described above, Pinnacle Pro-ONE includes the *Pinnacle PCI Performance Enhancer* (“PPE”), which optimizes mainboard chipset parameters for maximum PCI performance. It gets installed automatically with every Pinnacle Pro-ONE installation.

We have had rare reports that some systems crash after booting when PPE is installed. This can happen either when the system is running out of spec (e. g. overclocking or main memory that does not meet the timing specification) or when more exotic hardware is installed.

If this happens, you should disable PPE temporarily to check if it is the cause of the problems. To do this, boot up in safe mode by pressing and holding F8 while the system is starting up. Select *Safe mode* from the menu and wait for Windows to start. Now open an Explorer and move to the directory *C:\Program Files\Pinnacle\PPE*. In this directory, rename the file *PPE.EXE* to something else, e. g. *PPE disabled.EXE*. Then restart (in normal mode) and PPE will be disabled until you change the name back and restart again.

On most systems, PPE is required for usable performance of Pinnacle Pro-ONE. But if you are absolutely sure that you do not need it on your system, then it may be deinstalled without affecting any other Pinnacle Pro-ONE software components. To do this, open the Control Panel and double-click *Add/Remove Programs*. Find *Pinnacle Systems PCI Performance Enhancer* in the list and click *Add/Remove...*

ACPI

Pinnacle Pro-ONE is designed to use the Advanced Configuration and Power Management Interface of Windows 98 SE and Windows Millennium. You must not switch off ACPI or manually change IRQ assignment. The operating system will try to assign IRQs in the most optimal way. Typically 2 System-IRQs (9 and 10) are used for the PCI extension boards. IRQ sharing is mandatory.

Interrupt (IRQ) Sharing Problems

Although there are a total of four PCI devices on the Pinnacle Pro-ONE hardware, it only requires one interrupt line on the PCI bus. This line can be shared with other devices.

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However, not all other devices that share their IRQ with Pinnacle Pro-ONE are always well behaved. For IRQ sharing to work, it is necessary that all devices sharing an interrupt quickly check if any occurrence of an IRQ is for them and pass control over to other devices if this is not the case. If this takes too long, then an IRQ for Pinnacle Pro-ONE may not get through in time. This can cause dropped frames during capture and playback, broken 1394 transfers and even entire system lockups.

In case of problems it is thus a good idea to make sure that Pinnacle Pro-ONE gets its own IRQ line. To check if IRQs are shared, open the Device Manager (via Control Panel - System) and double-click on the topmost computer symbol. Here, you can view the IRQ allocation. Pinnacle Pro-ONE will show up with four devices (1394, E4, Overlay and Display) and all of them will use the same IRQ. In addition, you may see a device *called ACPI IRQ Holder for PCI IRQ Steering* - this is normal and no indication of IRQ sharing.

But if you see another device on the same IRQ number, then this device is sharing its IRQ with Pinnacle Pro-ONE. There are two ways to get rid of IRQ sharing:

- Swap the Pinnacle Pro-ONE board and other expansion boards around in their PCI slots. IRQs are allocated slot-wise and this may get rid of IRQ sharing.
- Change PCI IRQ allocation using your mainboard BIOS. Exactly how this is done depends on the manufacturer of your mainboard, but typically, you enter the setup program by pressing the Del key when the system starts up. Once in the setup, look for PCI Configuration or similar and then for a way to assign different IRQ numbers to different PCI slots. Try to assign a free IRQ to the slot that Pinnacle Pro-ONE sits in.

IRQ sharing problems most often occur if the other device is a hard disk controller (SCSI or IDE), a sound board or a USB controller.

Again, if you do not experience any problems with Pinnacle Pro-ONE there is no need to change the IRQ settings, even if the card shares one interrupt with several different devices.

Screen Saver

We do not recommend to enable screen savers on your video editing station. Especially those who automatically turn on power saving may cause to interrupt processes with long duration like capture, tape scan, DV mastering. In the MS Windows Screen Saver configuration dialog the Screen Saver should always be set to none! If you don't need your computers monitor during certain operations simply switch it of.

Power Management

You must never use any Power Management mode on your Pinnacle Pro-ONE editing station. Please set all Power Management settings to none or never. Power Management can interrupt or end important processes like capture, render, print to tape, and you might not be able to finish your projects in time.

Appendix

Recommended System Configurations

Mainboard	CPU	RAM	Graphics	Other components
ASUS P4T with P4 and i850 chipset	Intel P4 1,4 Ghz	256 MB	Gainward Geforce2 Ultra 500	Soundblaster live Soundcard, 3Com network card, Video-HD: 2x IBM IC35L040 UDMA 66 IDE_HD 8 + 25 GB
ASUS CUSL2-C with PIII 1GHz and i815 chipset	Intel P3 1 Ghz	256 MB	Elsa Erazor 3 (TNT2) with 4.12.01.0650 nVidia Detonator drivers	Soundblaster PCI128 Soundcard, Video-HD: IBM 18 GB UW SCSI HD, 45GB UDMA 66 Maxtor HD, Adaptec 2940 UW SCSI controller, 3Com networkcard
ASUS A7M-266 with AMD Athlon 1200 3C 266 and AMD 761+ VIA 82C686B chipset	AMD Athlon 1,2 Ghz	256 MB	ATI Radeon VE Dual Display, driver 4.13.7075	Adaptec 2940 UW2 SCSI, Turtle Beach Montego Soundcard, 3Com Networkcard, Video-HD: IBM-318350W SCSI 18 GB

The listed systems are examples for approved configurations.

Tested Workstations

Pinnacle Systems has tested various workstations from different manufacturers. These systems work flawlessly with Pinnacle Pro-ONE. However, components like motherboard, graphics card, hard disks of this workstations may change over time and thus introduce incompatibility issues that where not seen with the tested configuration before. To avoid such problems it's better to ask for a fully assembled turn key solution from those resellers who offer this systems or to pick systems matching exactly the tested configuration.

Please make sure that the computer you choose is equipped with sufficient hard disk capacity (two hard disks, one for video with at least 20 GBytes capacity) and memory (128 MBytes, better are 256MBytes). Nearly every manufacturer and it's resellers offer individual configuration choices regarding hard disks and memory.

- Compaq WS 300 (Windows ME, Matrox G450 DH)
 WS 6000 (Windows ME, Intel Xeon, i860, nVidia Quadro 2 EX)
- DELL WS 330 (Windows ME required, P4, i850, nVidea or ATI VGA)
 WS 530 (Windows ME required, Dual Intel Xeon, i860, nVidea or ATI VGA)
- IBM IntelliStation E Pro (Windows ME required, nVidea or ATI VGA)
 IntelliStation M Pro (Windows ME required, nVidea or ATI VGA)

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Certified Mainboards The following mainboards have been tested and found to work with Pinnacle Pro-ONE:										
Manufacturer	Product	Chipset	BIOS Revision String	CPU	PCI-Bridge-Patch	Busmaster Driver	Graphics Board	Graphics Driver	Sound Board	
ABIT	KT7A-RAID	VIA Apollo KT133A	n/a	AMD Athlon TB 1200	VIA Tech 4in1 4.25	VIA Tech 4in1 4.25	GeForce Quadro MX	nVidia Detonator 3 (6.31)	Soundblaster Live!	
AOPEN	AX34	VIA Apollo Pro+	1.09	intel Pentium III 700EB	VIA Tech 4in1 4.29V	VIA Tech 4in1 4.29V	ELSA Gladiac MX	nVidia Detonator 3 (6.50)	AC97 VIA	
ASUS	A7M266	AMD-760™	1002	AMD Athlon TB 1200	VIA Tech 3in1 4.24 (2)	VIA Tech 3in1 4.24 (2)	ELSA Gladiac MX	nVidia Detonator 3 (6.50)	CMI 8738/PCI-SX on board	
ASUS	A7V	VIA Apollo KT133	1.006	AMD Athlon TB 1200	VIA Tech 4in1 4.24	Windows Me Standard	ELSA Erazor II AGP	nVidia Detonator 3 (6.31)	n/a	
ASUS	A7V133	VIA Apollo KT133A	1.006	AMD Athlon TB 1200	VIA Tech 4in1 4.24	Windows Me Standard	ELSA Erazor II AGP	nVidia Detonator 3 (6.31)	n/a	
ASUS	CUSL2 (-M) (-C)	Intel® 815	n/a	intel Pentium III 700EB	Windows Me Standard	Windows Me Standard	nVidia Geforce 2 MX	nVidia Detonator 3 (6.31)	n/a	
ASUS	P3B-F	Intel® 440BX	n/a	intel Pentium III 850E	Windows 98 SE Standard	Windows 98 SE Standard	nVidia Geforce 2 MX	nVidia Detonator 3 (6.31)	Soundblaster Live!	
ASUS	P4T	Intel® 850	n/a	intel Pentium 4 1500	Intel Chipsatz inf	Intel ATA driver 6.03	nVidia Geforce 2 MX	nVidia Detonator 3 (6.31)	n/a	
Intel	D850GB	Intel® 850	n/a	intel Pentium 4 1500	Intel Chipsatz inf	Intel ATA driver 6.03	nVidia Geforce 2 MX	nVidia Detonator 3 (6.31)	n/a	
Intel	VC820	Intel® 820	n/a	intel Pentium III 733EB	Windows 98 SE Standard	Windows 98 SE Standard	Guillemot Xenior (TNT2-Ultra)	nVidia Detonator 2	n/a	
SOYO	SY-715A+	Intel® 815	715A+_4AA2	intel Pentium III 700EB	Intel Chipsatz inf	Intel ATA driver 6.03	nVidia Geforce 2 MX	nVidia Detonator 3 (6.31)	AC97 Sigmatal	
SOYO	SY-7VCA2	VIA Apollo KT133A	10/25/2000	intel Pentium III 700EB	VIA Tech 4in1 4.29V	VIA Tech 4in1 4.29V	ELSA Gladiac MX	nVidia Detonator 3 (6.50)	AC97 VIA	

Incompatible Mainboards

The following mainboards do not work with Pinnacle Pro-ONE:

- ASUS A7A266
- Chaintech 7AJA
- Iwill KA 266-R

Incompatible Chipsets

- All ALI chips

Chipsets to be verified

The following chipsets are still being tested for compatibility:

- SIS

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Certified Graphics Boards

Graphics Card Test List (includes incompatibles as well)

Graphic board Model	Chipset	driver	Win	Prim	Win	Prim	tim	Comments *
			98SE		ME			
			Over	ary	Over	ary		
			lay		lay			
3dfx Voodoo3	Voodoo3	4.11.01.1204 3dfx			--			
		4.12.01.0666 3dfx			--		not compatible	
								because no overlay support
3dfx Voodoo4 4500	VSA-100	4.12.01.0622 3dfx			--			
		4.12.01.0666 3dfx			--		not compatible	
								because no overlay support
ASUS AGP7100/2V 1D Twin	Geforce 2MX	4.12.01.0618 Asus						
		4.12.01.0631 nVidia Detonator						
		4.12.01.0650 nVidia Detonator						
		4.12.01.0778 WHQL						
		4.13.01.1241 nVidia WHQL			X	X		5) no overlay surface with 32 Bit
Guillemot 3D Prophet	Geforce 256	4.12.01.0635 Guillemot						
		4.13.01.1241 nVidia WHQL						
Videologic	Power	3.2.1.2						

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Neon 250	VR250	Videologic						
Gainward Geforce2 Ultra 500	Geforce 2 Ultra	4.12.01.0752 Gainward						
		4.12.01.0778 WHQL						
		4.13.01.1080 nVidia Detonator						
		4.13.01.1241 nVidia WHQL			X	X		
ATI Radeon VE Dual Display	Radeon	4.13.7075 ATI			X	X		
		4.13.7115 Beta ATI	X	X	X	X		
ATI Rage Fury PRO	Rage 128 PRO	4.12.6292 ATI						
		4.13.7078 ATI						
Matrox Millennium G400 DH	MAG G400+	4.12.01.1720-1.72.021 WHQL Matrox	--	--	--	--		not compatible
		4.12.01.1730-1.73.019 uniform Matrox						
		4.12.01.1810-1.81.012 actual Matrox	--	--	--	--		not compatible
Elsa Gladiac 32 GTS	Geforce 2 GTS	4.12.01.0756 Elsa			X	X		
		4.12.01.0778			X	X		

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		WHQL					
		4.13.01.1080 nVidia Detonator	X	X			
		4.13.01.1240 Elsa	X	X	X	X	
		4.13.01.1241 nVidia WHQL	X	X	X	X	
S3 Savage 3D	S3 Savage 3D	4.11..01.4005-66.13.22 S3					not compatible
Diamond Viper V550	nVidia TNT	4.12.01.0390 WinME			X	X	5) no overlay surface with 1600x1200/32
		4.12.01.0631 nVidia Detonator			X	X	5) no overlay surface with 1600x1200
		4.12.01.0717			X	X	5) no overlay surface with 1600X1200/32
Elsa Erazor III	nVidia TNT2	4.12.01.0206- 0120 Elsa					
		4.12.01.0390 WinME					
		4.12.01.0631 nVidia Detonator					
		4.12.01.0650 nVidia Detonator			X	X	5)
		4.12.01.0756 Elsa					
		4.12.01.0778 WHQL					
		4.13.01.1240 Elsa					
		4.13.01.1241 nVidia WHQL			X	X	5)
Hercules 3D Prophet 4500	Kyro II	4.12.01.3089-1.00.02.0205 Hercules					
		4.12.01.3114-1.00.02.0205 Hercules			X	X	5) , 7) not recommend because skipped frames occurs during playback

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Diamond Steahlth 3 S540	S3 Savage 4 Pro	4.12.01.8225-8.20.30 Diamond						not compatible
Matrox Millenium G450 DH	MAG G450	6.04.029 Matrox						
		6.23.005 Matrox						
ATI Rage 3D Pro	Rage Pro	4.10.00.3000 WinMe			X	X		5), 1600x1200/32 n/a
		4.11.2628EN ATI						
		4.12.2628 ATI						
		4.12.2635 ATI			X	X		1600x1200 n/a
Elsa Gladiac 920	Geforce 3	4.13.01.1101 Elsa						
		4.13.01.1240 Elsa						
		4.13.01.1241 nVidia WHQL	X	X	X	X		
Elsa Gladiac 511 Twin	Geforce 2MX	4.12.01.0756 Elsa						
		4.13.01.1240 Elsa						
		4.13.01.1241 nVidia WHQL			X	X		5)

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ATI Rage Fury	Rage 128 GL	4.11.6234 WinME			X	X		
		4.13.7078 ATI			X	X		

comments *

- 1) No function under Windows 98SE
- 2) No function under Windows ME
- 3) Device does not support Overlay surface
- 4) Device does not support Primary surface
- 5) Overlay surface not in all resolutions and bit-depths available
- 6) Primary surface not in all resolutions and bit-depths available
- 7) not recommended (because of serious problems)

timing *

- a) wrong timing Premiere start up
- b) wrong timing Screen saver
- c) wrong timing extended Twin View

" X " work

" - " doesn't work

No entry means that this device or driver is not yet tested. Pinnacle will subsequently update the compatibility list. Please only use tested and recommended graphics cards in your Pinnacle Pro-ONE editing station.

According to this compatibility list the following graphics controllers should basically provide sufficient performance and compatibility: *nVidia*: TNT, TNT2, Geforce 2MX, Geforce 2 Ultra, Geforce 2 GTS, Geforce 3; *ATI*: Rage Pro, Rage 128 GL, Radeon.

Even if there are some limitations it seems to be a good and save choice to go for WHQL drivers.

ATTENTION: This list includes **compatible** and **incompatible** graphics cards. Some cards can only be used under Windows Millennium, they are incompatible under Windows 98 SE. Graphics cards with S3 Savage chips will not work at all with Pinnacle Pro-ONE.

Make sure that those drivers get used the card was tested with. Other drivers might cause different results and the card might not work using this drivers.