

DAVINCI RESOLVE 12.5

HARDWARE SELECTION AND CONFIGURATION GUIDE



The world's most popular and advanced on set, editing, color correction and finishing tool for Mac OS X, Windows and Linux

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Getting Started

Building a professional non-linear editing, color correction and finishing

DaVinci Resolve is the worlds most popular and advanced professional on-set, online editing, color correction and finishing tool for Mac OS X, Windows and Linux.

It's completely scalable, resolution independent and also natively supports an extensive list of image, audio and video formats so you can mix various sources on the timeline at the same time. Unlike traditional editing, grading or finishing systems all image processing in DaVinci Resolve is graphics processor (GPU) based with 32 bit floating point precision.

It also processes every frame at full color and bit depth all the time. So while users can select proxy or cached operation to improve performance on lower power hardware, to get the highest quality image processing in the industry in real time even at 4K, selecting the correct hardware configuration for your specific needs is important.



Whether you are just starting your editing or grading career, building a post production facility or upgrading your existing DaVinci Resolve suite, this guide contains important information which will help you upgrade, buy or build and configure your system.

For operational details please refer to the DaVinci Resolve Reference guide. Packed with practical examples from industry leaders with more than 30 years of experience and with more than 900 pages of detail including screen shots and workflow tips, the guide is a must read for new and experienced users alike.

Guidelines for selecting your OS and system hardware

The system you select to upgrade, buy or build may be based on what computer you already have and can update, or a specific operational or technical requirement.

The OS selection maybe as simple as what you have or prefer, or it's guided by the system cost, however it's really important to understand that each OS has its advantages over the others and sometimes the requirement to render in a particular codec will define your selection. Please refer to the "DaVinci Supported Formats and Codecs" list from the support web page and the "Compare" list on the Resolve page of the BMD website to help guide your selection. Please note, DaVinci Resolve for Linux is only available in the full license version and it is included with the DaVinci Resolve control panels.

Once you have selected an OS, to achieve the best possible experience it is essential to configure your DaVinci Resolve system with high performance computer hardware including at least one high performance GPU. Depending on your expected source files and codec and the selected timeline resolution, the hardware configuration defines the speed that you can edit, playback and grade and also the time to render your finished timeline.

As a guide, for field preview and editing there are new Mac OS X and Windows laptop systems listed below that are suitable for SD and HD timelines. If your projects finish in HD you could use one of the single GPU workstations listed. Compare this to the needs of a client supervised 2K or 4K editing or grading session for a TVC or feature film, this user application should have a high performance configuration with two or more GPUs.

There are hardware configurations detailed below starting from a single dedicated GPU for image processing up to a eight GPU system suitable for demanding 4K and stereoscopic grading sessions. Following the release of DaVinci Resolve 12 a much broader range of GPUs is supported. While performance varies greatly, most modern AMD, Intel and NVIDIA GPUs that support OpenCL 1.2 or CUDA 2.0 compute capability will operate with DaVinci Resolve.

UI monitor resolutions from 1440x900 up to Retina 5K are also now supported.

In all cases we highly recommend a color and brightness calibrated display for your client, edit or grading monitor that you will connect to DaVinci Resolve with one the Blackmagic Design capture and playback cards to provide a SDI or HDMI output.

DaVinci Resolve and DaVinci Resolve Studio for the most part have the same hardware performance needs. However some of the full version features are particularly demanding so using low performance CPU and GPUs especially when using optical flow speed changes, temporal processing and noise reduction will mean these operations can be very slow or in some cases are not able be performed at all.

For other processes, particularly with 4K sources, one way to improve your editing and grading experience is to use a HD resolution timeline and displayed on a HD monitor. After you have completed your edit and grade simply change the timeline resolution for a render.

Sizing your system: HD, UHD, 4K, Camera Raw and Codec considerations

With the increasing use of digital cameras, projects now often include camera clips at HD, UHD, 4K-DCI or higher resolutions. While some cameras provide UHD or 4K or higher capture resolutions they usually store the images as compressed data as this takes less storage space and bandwidth to record.

However for editing and grading, the compressed data needs to be decompressed to the full RGB per pixel bit depth that will use four times more processing power of a HD image for the same real time grading performance. The decompression process, like compression, uses the CPU so the heavily compressed codecs need more powerful and a greater number of CPU cores.

Once the files are decompressed, as DaVinci Resolve uses the GPU for all image processing, and always at the full color and bit depth, the number of GPU cores and the size of GPU RAM becomes a very important factor when dealing with UHD and 4K-DCI sources and timelines.

For uncompressed images, in industry standards like DPX or EXR particularly with 16 bit files, the CPU has an easier time but greater demands are placed on the disk array, RAID controller, storage connection and even the file system itself.



So, there are many potential bottle necks within a 4K pipeline depending on the clip codec, CPU speed and number of cores, system RAM, the number of GPUs, their core count and GPU RAM, even the motherboard slot speed, disk speed, etc. and each of these can affect the playback, editing, grading and display of your timeline.

In selecting your hardware configuration please consider these practical and often physical limitations and scale your system based on your budget as well as your expected performance requirement.

DaVinci Resolve Advanced Control Surface benefits

Of course you can use DaVinci Resolve with your mouse and keyboard or with a pen and tablet however ideally for grading you should use all the benefits that come with the DaVinci Resolve control panel. The custom backlit keys featuring RGB color and intensity to suit your mood and taste look amazing in a darkened room and will definitely impress your clients.

The DaVinci Resolve Advanced Control Surface has been designed by colorists to work together with the application. Controls have been placed near your natural hand positions so the lift, gamma and gain trackballs can all be adjusted at the same time. Each correction control has a separate button or knob, so you can instinctively reach out and enhance your image.



That's the key to creative flexibility, to be able to immediately and directly have the greatest control over the maximum number of elements so your creative vision for the scene can be set, adjusted, reviewed, compared to other shots and adjusted again.

Colorists constantly grab and play stills to compare grades and using the gallery it's super fast. The panels allow multiple versions of grades to be created and reviewed in the same time you might be struggling on panels that are not tailored for the task. The control panel has dedicated memory keys to quickly save and recall stills and you can use the fader T-bar to wipe between saved stills and your live grading timeline.

There are five super bright full color displays that show menus and indicators for a massive 32 soft knobs and 30 soft keys. Menus update automatically to show the quickest and most direct keys to every feature so you never waste time searching through long menus. With each major software update new menus are added so your panel becomes more valuable the longer you use it.

With a single key on the panel you can also switch your trackballs to grading shadows, mid tones and highlights using log controls with high and low range, contrast and master pivot. There are individual GPU debayer controls on the panel for exposure, contrast, lift, gain, color temperature, tint, highlight and lowlight recovery, saturation, color boost and mid tone detail.

In fact each soft knob allows super fine parameter adjustment and with a simple push, you can set each parameter back to the default.

Colorists for years have reported more than double and often triple efficiency grading when they use the DaVinci panels. You can use this extra speed for creating more looks, getting through your job quicker when you need to, or just impressing your client by being able to deliver the vision they're looking for without any fuss.

Client, edit and grading monitor connections

To deliver consistent quality video deliverables all editors and colorists working on TV or film projects will need to use a proper color calibrated monitor connected to an SDI or HDMI video I/O card. This device will occupy a PCIe slot in the computer, a USB 3.0 port or a Thunderbolt port depending on the system you have and the video card you select.

DaVinci Resolve supports the Blackmagic Design range of DeckLink and UltraStudio capture and playback devices for SDI video and embedded audio ingest and playback. This I/O device is also used for connecting your client, editing and calibrated grading monitor. Users can loop a single feed from the VTR to the grading monitor or connect the second SDI output directly to the monitor.



This same card or another can be used for SDI ingest into DaVinci Resolve from a deck or live camera.

The Blackmagic Design video card range offers 12G, 6G and 3G SDI solutions as well as HDMI to connect directly to your monitor. The UltraStudio range offers a variety of output connections and is connected via Thunderbolt to the computer.

You can also use the UltraStudio Mini Recorder and Mini Monitor with DaVinci Resolve however there is no ingest or tape transport controls available with these devices.

For DaVinci Resolve to use the BMD video I/O devices you will need to install the Desktop Video drivers, which came with your I/O device or the updates which are available from the support page at www.blackmagicdesign.com.

UI and grading monitors

DaVinci Resolve offers support for a wide variety of UI resolutions in single and also dual UI monitor configurations. The application is optimized for the Retina 5K screen (5120x2880) with a resultant resolution of 2560x1440 and scales in a number of ways to even operate on laptops screens with 1440x900 res. If you do not have a Retina 5K screen the UI layout works extremely well at all resolutions from 3840x2160 to 1920x1200. Lower resolutions are supported with abridged name and icons at the controls.

We don't currently recommend any specific grading monitors and clearly they become less expensive and better every year. No matter which you decide on, it's very important to have it calibrated, either by an expert or yourself using a high quality probe. If you use one of the calibration programs with Resolve, or a standalone application, generate a 3D LUT and use it in the Display LUT field within DaVinci Resolve, or within the monitor itself if that capability exists.



Whether you are grading for the latest Hollywood blockbuster, a TV series, web video or your own hobby shots, using a non calibrated monitor or one which drifts in black, white and color values means your shots could look different each day or week and certainly make consistent deliverables a challenge even for the most experienced colorist.

Media storage selection and file systems

Mac OS X

DaVinci Resolve for Mac supports a number of internal and external storage systems however almost any storage, designed for Mac OS X and high bandwidth media, will be suitable for use with the Mac OS X file system or the more expansive StorNext for a SAN system.

A current model MacPro, MacBook Pro and iMac can be connected directly to a Thunderbolt disk array for SD and HD video. Thunderbolt disk arrays provide fast, high capacity disk storage and are easily expandable as your media storage needs grow.

Facilities with SAN based shared storage can work concurrently with projects that are being graded in other Mac, Windows or Linux suites. The most common connection method for the SAN storage is via a Thunderbolt to Fibre channel adapter to connect to a SAN.

The Preferences option under the DaVinci Resolve menu is where you can add or remove internal and external disk storage for use with Resolve. The first volume in the list will be used to store gallery stills and cache files so this should be a drive that is always on your system.



Windows

Windows users can format their drives to the standard NTFS or any Windows supported format such as ExFAT. An external disk array and a RAID or HBA card can also be used for additional disk performance and storage, especially for 2K, UHD and 4K-DCI media.

Like Mac OS X and Linux, facilities with Windows systems can use SAN based shared storage via single or dual 16Gbit Fibre Channel connections to a FC card in the Resolve workstation.

The Preferences option under the DaVinci Resolve menu is where you can add or remove internal and external disk storage for use with Resolve. The first volume in the list will be used to store gallery stills and cache files so this should be a drive that is always connected and accessible to your system.

Linux

DaVinci Resolve for Linux supports the Quantum StorNext file system for image storage management. This has proven to be a robust and reliable file system for direct attached storage (DAS) and storage area network (SAN) systems.

StorNext can provide realtime 4K bandwidth on a continuous basis without dropping or delaying frames as sometimes seen with other file systems. The StorNext license should be purchased from Quantum for a DAS system or ensure your facility has the license if connected to a SAN.

The automated OS and installer ISO provided by Blackmagic Design with the application is used to format and partition the system disk, install the CentOS 6.6 operating system, the Resolve application and appropriate drivers. If your facility intends to use DAS with Resolve, it might be necessary to install Red Hat Enterprise Linux v6.6 rather than the usual CentOS used by most Resolve facilities. This requirement might be imposed by Quantum in which case the Red Hat Enterprise Linux license must be sourced elsewhere and you will need to create your own RHEL 6.6 installer as described in the "Installing Linux" section.

There are also a number of other vendors of file systems suitable for Linux and these include the Scale Logic OS agnostic HyperFS file system, DVS, Facilis and Isilon. Blackmagic Design only tests with StorNext but this is primarily because there are too many variations to test all others, so we recommend you consult with your file system vendor for details of what each system can offer you.

Please contact and consult with your file system vendor for information and their recommendations for your specific needs, and the ongoing support they offer.

Once you have the file system installed SAN based shared storage can be connected via single or dual 16Gbit Fibre Channel via a FC card in the Resolve workstation.

Hardware Selection & Setup

Time to select your system

The following pages can be used to help select a hardware configuration for a Mac OS X, Windows or Linux DaVinci Resolve system. System interconnection diagrams will also help you plug and play the different components of your selected system.

As there are too many perfectly acceptable configurations for Blackmagic Design to test them all so we recommend visiting the DaVinci Resolve section of the Blackmagic Design Forum to review the feedback other users offer on different configurations and their success for different user applications.

At the end of the guide is a shopping list for each OS where you will see system requirements and recommendations, often with alternatives, and optional extras. GPU models alone change quarterly so this guide should be used as that, a guide to what has been tested and something for you to review before making your hardware selection. These are not exhaustive lists but offer a guideline to help your selection.

We recommend you use this checklist to make sure you have all the items you need to buy and build your system.

Blackmagic Design Items

- DaVinci Resolve Studio dongle
- Capture and playback card
- DaVinci Resolve Advanced Panel

System Requirements

- Modern computer platform with at least a Quad core CPU and a powerful GPU
- UI monitor if you don't select a laptop or iMac
- Internal Storage for the application and project database
- Keyboard and mouse

Optional Extras

- Client, edit or grading monitor
- External Media Storage and connection
- UI and image processing GPUs for Windows and Linux
- PCIe Expander and external GPUs for Windows and Linux
- Thunderbolt expander for Mac OS X
- DaVinci USB Keyboard
- USB Tablet and pen
- USB extender
- UI extender
- Third Party Grading Panels
- Database Server for shared and collaborative workflows

DaVinci Resolve for Mac

Overview and system selection

The Mac OS X offers the broadest format and codec support and systems are available from low power laptops to the iMac for independent users up to the MacPro for facilities that need faster processing. To select the best system configuration for your needs it's important to understand how you will use the system.

There are no special configurations for the majority of Mac OS X systems so you can select from the options listed, select your BMD supplied components and then follow the DaVinci Resolve installation instructions and the three important hardware setup steps to get you started.

All users should consider the media storage and other accessory options later in this guide and if you have a system using NVIDIA CUDA GPUs should read the third party driver info below before you start Resolve.

Mac Pro

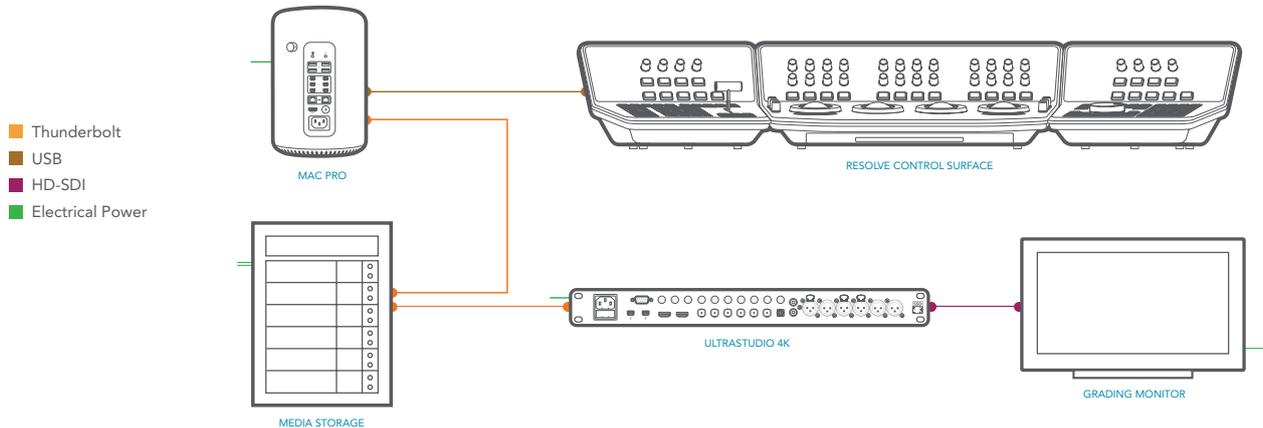
If you are planning UHD and 4K editing and/or grading with clients in attendance, the new Mac Pro is a good choice. The Mac Pro includes dual OpenCL GPUs and both of these are used for image processing, even for the free version of DaVinci Resolve. After extensive testing we recommend the D700 GPU model. The D500 GPU model offers limited performance in comparison to the D700 and may also exhaust the GPU ram with clips or timelines greater than HD, or when temporal processes, NR and optical flow speed changes are requested.

The 12-core CPU model is ideal for when source clips are UHD or higher resolutions or include heavy clip compression, such as clips from the RED and Sony camera range. We suggest a minimum of 8 CPU cores and 16GB system ram.

Connection of disk storage systems and the single or dual UI monitoring is via the Thunderbolt 2 ports. These Thunderbolt ports are also used to connect the Blackmagic Design capture and playback card. There are no special setup requirements for the 2013 Mac Pro.

Please refer to the pre 2013 configuration guide to configure the 2012 and older MacPro's.

Mac Pro Configuration



iMac

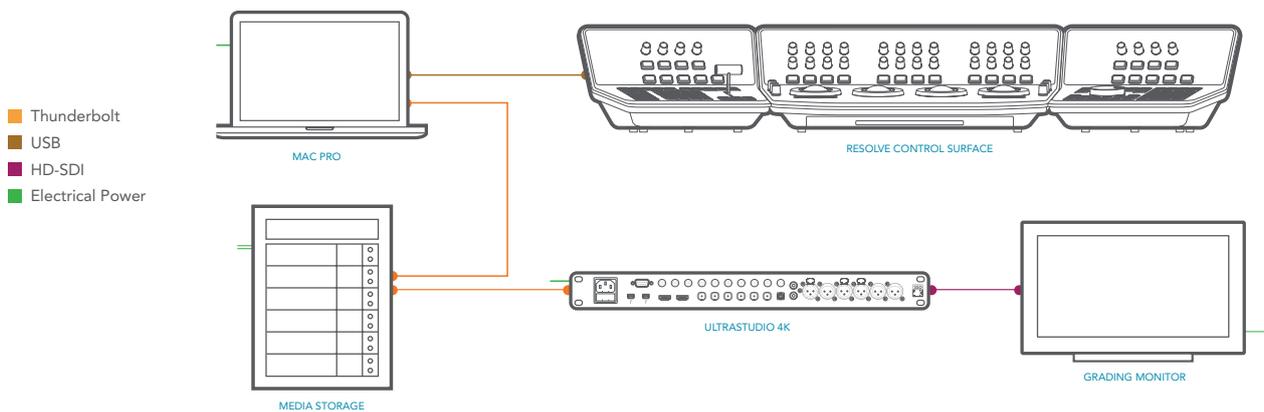
The 27" late 2014 Retina 5K iMac with 4GB GPU RAM provides a flexible and versatile desktop workhorse for real time editing and grading material up to and including HD video. There are no special setup requirements for the 27" late 2014 Retina 5K iMac. The late 2013 iMac with the 4GB GPU RAM model is also suitable.



With both models UHD timelines are practical with some performance limitations especially when using optical flow speed changes, temporal processing and noise reduction.

The new 27" mid 2015 Retina 5K iMac with 2GB GPU RAM and many of the older model iMacs with 2GB of GPU memory will reach these GPU limits at lower resolutions and with fewer editing tracks or color grading nodes. Very limited performance is possible on the 2010 and 2011 top of the line iMac's and these systems will not be suitable for any temporal processing, NR or images greater than HD resolution.

iMac & MacBook Pro Configuration



MacBook Pro

As all laptop systems are designed for portability and low power, for use with DaVinci Resolve we recommend selecting the fastest CPU, 16GB of system memory and the GPU with the most memory that is currently available.

For example the Retina 15" mid 2015 MacBook Pro has an option for the AMD Radeon GPU with 2GB of memory and while Resolve will operate with the standard Intel Iris Pro GPU there is significant performance benefits with the extra GPU memory in the AMD GPU.

The 2014 and older models with NVIDIA GPU and Iris or Iris Pro will also support HD and limited UHD processing and due to the GPU limitations. They are not optimized for optical flow speed changes, temporal processing and noise reduction work.

Note: the 2014 MacBook Pro contains two GPUs; one for high performance graphics and the other for better battery life. It is essential to enter the Energy Saver preferences, in the System Preferences of Mac OS X, and select the high performance graphics option.



MacBook

The early 2015 MacBook in the highest performance configuration, with just 8GB of system RAM and an Intel HD Graphics 5300 GPU, has been tested for use with HD ProRes files. For offline editing while you're traveling or just reviewing your BMD camera files from the days shoot its performance while limited is operational with HD timelines.

Mac Mini

While the Mac Mini is not ideal for use as a Resolve workstation, due to its low performance GPU, the current series are ideal for use as a central database server for full license Resolve users that wish to share projects with other systems within their facility. Details of the Mac Mini setup and installation of the Remote Database Server are at the end of this guide.

Legacy Pre 2013 Mac Pro

Specific details of the recommended pre 2013 Mac Pro configurations can be found in the Pre 2012 MacPro and 2013 Configuration guides however please be aware that DaVinci Resolve requires at least Mac OS X 10.10 and many GPUs suitable for the older MacPro systems may not have drivers for operation with the new OS.

NVIDIA and CUDA Drivers for Mac OS X

Mac OS X systems using AMD GPUs have the GPU drivers included in the Mac OS X. If you are using DaVinci Resolve from the Apple App Store this also uses the drivers within OSX even if you have NVIDIA GPUs.

Systems using NVIDIA GPUs and those that are not use DaVinci Resolve from the Apple App Store will need to have the correct NVIDIA and CUDA driver to operate the GPUs. While Resolve will check the CUDA version on your system you may have to update it after any OS updates.

There are two parts to successful operation of your NVIDIA CUDA based GPUs.

NVIDIA drivers

If you use Mac OS X 10.8.4 or newer then Apple supplies within the OS NVIDIA drivers for the Apple certified GPUs. If you plan to use a GPU that's not certified for Mac the OS driver will not work. In these cases, you will have to try to download the NVIDIA web driver for non-Mac GPUs. Generally all older Mac certified cards will work with the latest driver.

CUDA drivers

If your Mac has NVIDIA GPU's and does not have CUDA installed the DaVinci Resolve installer will load the latest CUDA drivers suitable for Resolve. If however your system already has a newer CUDA driver that Resolve needs, the DaVinci Resolve installer will not update this driver as this may cause problems with other applications you have that use CUDA.

If the message, "WARNING: No CUDA Acceleration Hardware Detected" appears when you launch Resolve and your Mac contains the recommended NVIDIA GPUs and NVIDIA drivers for those GPUs, you will need to quit Resolve and update the correct CUDA drivers.

After quitting Resolve, go to the Apple menu and choose System Preferences. Then click on the CUDA icon to reveal the CUDA Preferences and note the installed CUDA driver version.

If the installed drivers are older than the certified version listed on the Resolve installer readme, avoid clicking on the "Install CUDA Update" button and instead visit www.nvidia.com/object/mac-driver-archive.html to download the certified CUDA driver version.

Once the certified CUDA drivers are installed, you will be able to successfully launch DaVinci Resolve.

Installing DaVinci Resolve for Mac

Installing or updating Resolve is essentially the same process. Be sure to log in to your Mac as the user that will be operating Resolve. You will need an Administrator password to install the software on your system and we recommend that DaVinci Resolve be installed into the standard Applications folder on your startup hard disk.

Mac App Store Version

For DaVinci Resolve purchased from the Mac App Store, just press "Install" in the App store page for Resolve and the App Store takes care of everything. You can also receive alerts when updates are available.

BMD Web site and SD Card Version

Using the installer on the SD card that came with your BMD product or DaVinci Resolve that was downloaded from the BMD web site, double click the 'Resolve Icon' and follow the on-screen prompts to install the software.

The installation process takes just a couple of minutes. After the software has been installed you may wish to add the application icon to your dock to make DaVinci Resolve easy to launch.

For DaVinci Resolve Studio the included USB dongle contains the Resolve for Mac license and must be connected to your computer before launching the Resolve software.

Driver Installation

Systems with a Blackmagic Design capture and playback card for your client, edit or grading monitor you will need to install the latest Desktop Video drivers that are available from the support page at www.blackmagicdesign.com.

If you use Apple Final Cut Pro, Avid Media Composer or Adobe Premiere Pro on the same Mac as Resolve, and you wish to use these applications with a DeckLink or UltraStudio, install the latest Desktop Video drivers after installing your alternative editing applications. Blackmagic Desktop Video drivers install associated easy setup options and presets for a number of other editing applications.

Note: for systems using AMD GPUs the GPU drivers are included in the Mac OS X so these don't need updating. If you are using DaVinci Resolve from the App Store this also uses the drivers within OSX, even if you have CUDA GPUs. For other CUDA GPU based Mac systems please refer to the Third Party Drivers section below.

Important steps for first use

There are three important hardware items to configure when you first start the Resolve application.

Step 1 Open the Preferences window from the DaVinci Resolve application menu.

The first tab shows the System Overview where you select the application language and you can verify that Resolve has found your GPUs and any Red Rocket cards if installed.

Step 2 Go to the second tab, Media Storage. The first location in the storage list will become the primary location for images, all proxies, cached files and gallery stills. This location will usually not be your system disk but a specifically installed permanent disk for media. Often it's an internal or external RAID disk array and it needs plenty of storage capacity.

If you don't have a permanently connected media array on your system we recommend that you identify a folder on your system disk to use as your primary drive and folder and then add and remove other drives as needed but don't change the primary drive until you have considered how to back up and restore your stills.

Click on the "+" (add) button to add a volume, folder or mount point to the list of disk storage for your media. Click on the "-" (remove) button to remove a volume, folder or mount point from the list of disk storage.

Step 3 In the Video I/O and GPU tab select which capture and playback device you will use for capture and playback. Depending on your workflow, this device may also be connected to a VTR or camera. If you are using Resolve Live, select the video input capture device.



This tab also has selections for using a Red Rocket card if available, or use the GPU for RED image debayer. You can also select to use the Display GPU for image compute if you have DaVinci Resolve Studio and also select here if you wish to use the computer system audio output in preference to the capture and playback card. Finally for some systems you can select the GPU processing mode here.

Step 4 In the Control Panels tab choose which color grading control panel hardware you have connected to your system. DaVinci Resolve supports the current USB 2.0 generation of DaVinci Resolve control panel but can also be used with third party panels from Avid, JLCooper, Oxygen Tec and Tangent Devices. Details on connection follow later in this guide.

The Advanced tab is generally not required by most facilities as it's for specific system configurations. You should leave this blank unless directed otherwise.

Step 5 After changing any of these preferences select save and restart the DaVinci Resolve application.

DaVinci Resolve for Windows

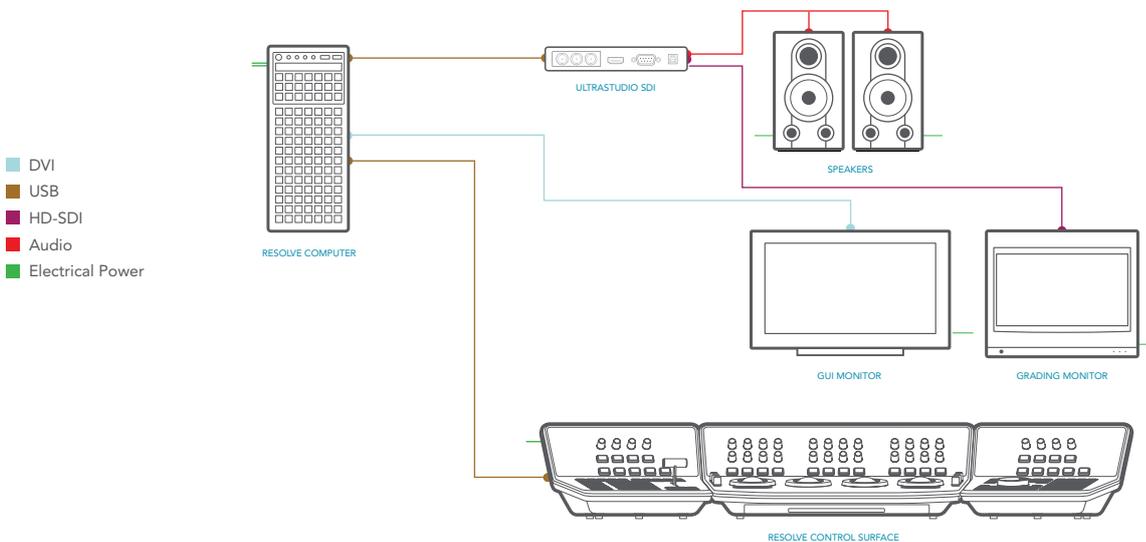
Overview and system selection

The Windows OS offers the broadest hardware support and systems are available from low power laptops to the generic motherboard build your own systems for independent users up to the workstation class for facilities that need faster processing. Each has multiple options to consider.

However in every case there are special performance and hardware configurations for the Windows OS systems so please refer to the hardware and OS setup information below. Please also refer to the GPU driver information and follow the DaVinci Resolve installation instructions and the three important hardware setup steps to get you started.

DaVinci Resolve supports Windows 8.1 Pro, 64-bit and also the new Windows 10 Pro. All new systems should use either of these OS versions.

Standard Configuration



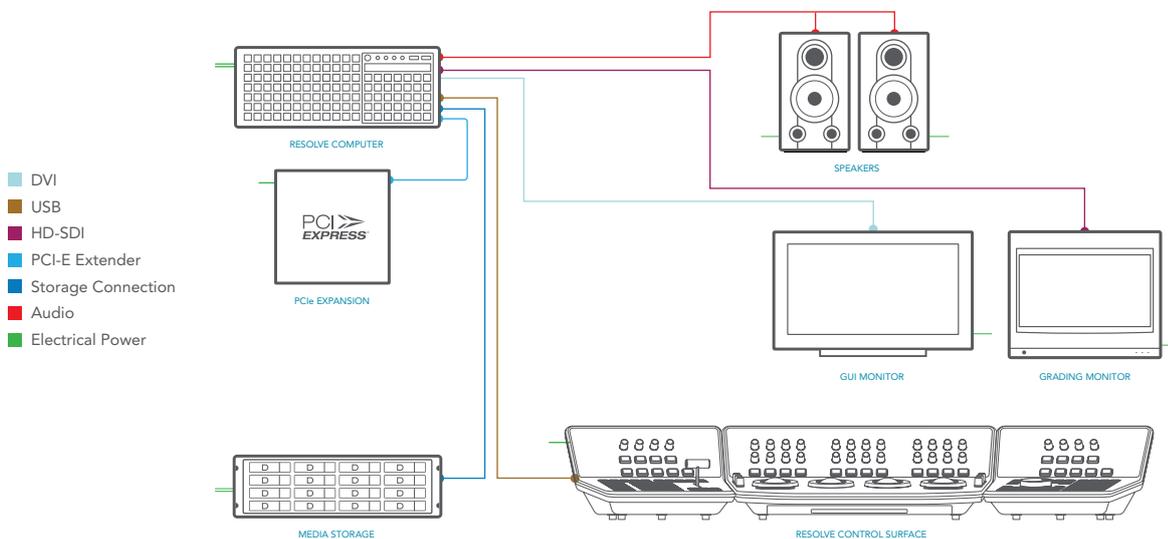
All desktop and workstation systems support the use of a PCIe expander to add extra PCIe slots and power. However additional PCIe cards in the computer, such as capture, storage or even an expander HBA, should only be added to the slots shown in the tables below to avoid causing a slow down in the performance of the UI and image processing GPU cards.

For all systems using an expander, we generally recommend that you install a single UI GPU in your computer and have all image processing GPUs in the expander. While this guide refers to configs with up to three GPUs, there are now third party systems available with more image processing GPUs and for users interested in those configs please contact the vendor directly.

You will also find below a list of suppliers who can offer turnkey systems of various performance levels and prices.

Please note that you cannot mix GPUs from the major suppliers, AMD and NVIDIA, in the one system. We recommend using the same model GPU if multiples are used with the exception of the UI GPU if it's not sharing processing tasks. A number of GPU options are listed below, as are options for media storage, file system and accessories.

Advanced Configuration



Generic PCs

If you don't need guaranteed performance and have a tight budget you can consider one of the many generic pro motherboards now available.

The ASUS motherboard and chassis listed is an example of a generic system that you can build yourself. It will be suitable for most independent users even at 4K when a powerful GPU is installed. The biggest limitation of these systems is the single CPU so files that need decompressing will use most of the CPU's capabilities.

Another key consideration when selecting a generic pro motherboard is not just how many fast PCIe Gen3 x 16 slots that are available, but how many operate at full speed when other slots are used. Often when you read the fine print, these motherboards only offer x16 speed when just one or two slots are used. Ultimately this reduces real time performance.

The ASUS X99 Deluxe motherboard specification includes 2 x PCIe Gen3.0x16 slots, three x8 slots and a single PCIe Gen2.0x4 (which should not be used). For maximum overall slot bandwidth with Resolve please use the 40 lane CPU and the slots in the following configuration. Slot 1 for GPU, Slot 3 for DeckLink card and slot 5 for RAID controller for external storage. If you use any of the other slots this will reduce the speed of the x16 slots and affect your operational performance so we do not recommend using slot 2 or 4 or the PCIe Gen2.0x4 (also referred as slot 1 in the manual)



It is also very important that you install the latest USB 3.0 software drivers and firmware for your motherboard if you plan on using an UltraStudio SDI for video I/O. Please visit the ASUS website for details.

Most ATX computer chassis provide as many as 10 disk bays for plenty of low cost, internal, SATA disk storage. Alternatively external eSATA, Fibre Channel or even USB 3.0 disk arrays can be used for media storage depending on your image resolution and number of files.

HP Z840 Workstation

The HP Z840 Workstation provides a flexible and simple workhorse for previewing and grading material up to and including 4K. As this system has dual CPUs it is more suitable for decompressing hi-res files, such as 4K, 5K and 6K camera Raw.

It can be used as a desktop tower or rack-mounted and contains a single power supply. The motherboard provides fast image processing using three, PCIe Gen 3.0 x16 slots that do not share bus resources.

One of these slots is used for the UI and the other for image processing GPUs. Please see the recommended slots use in the tables later in this guide to avoid causing a slow down in the performance of the UI and image processing GPU cards..

Supermicro SuperServer

The Supermicro SuperServer 7048GR-TR is a more powerful configuration suitable for stereoscopic grading, UHD and 4K-DCI video. It can be used as a desktop tower or rack-mounted and contains redundant power supplies.

It provides very fast image processing using up to four, double-width, PCIe3.0 x16 slots for greater throughput and flexibility. One of these slots is used for the UI and the other for image processing GPUs. Please see the recommended slots use in the tables below to avoid causing a slow down in the performance of the UI and image processing GPU cards.

The Supermicro SuperServer is also the certified platform for Linux configurations should you wish to upgrade in the future. Please refer to the specific BIOS settings for this system, which you can find later in this guide.

PC Laptops

Few older laptop computers have had sufficient GPU power and screen resolution to operate DaVinci Resolve. However in the last year or two there have been an increasing number of systems with the new GPUs that are suitable. So while performance varies greatly, most modern AMD, Intel and NVIDIA GPUs that support OpenCL 1.2 or CUDA 2.0 compute capability will operate with Resolve.

When selecting a system for operational ease you should order a laptop with sufficient screen resolution to clearly show the full UI, such as 1920x1080, and at least 16GB of system RAM. 512GB or more of SSD system disk is also recommended, as is a fast connection for your media storage.

While performance for many applications and UHD resolution will be limited the Dell Precision M6800 is an example of a laptop for Resolve field use.

Turnkey solutions

There are a number of vendors who offer turnkey systems configured for operation with DaVinci Resolve. While some options are listed here please refer to their specific configurations and after sales support to ascertain the suitability for your needs.

Safe Harbor Computers

www.sharbor.com/tsunami-riptide-blackmagic-design.html

Cubix

www.cubix.com/accel-app-solutions

Windows hardware, BIOS & OS configuration

The specific motherboard or computer you select for your Windows system may in its standard jumper configuration set to use internal graphics and the BIOS set for just one GPU. If this is the case you may need to reconfigure the hardware and BIOS prior to installing the OS.

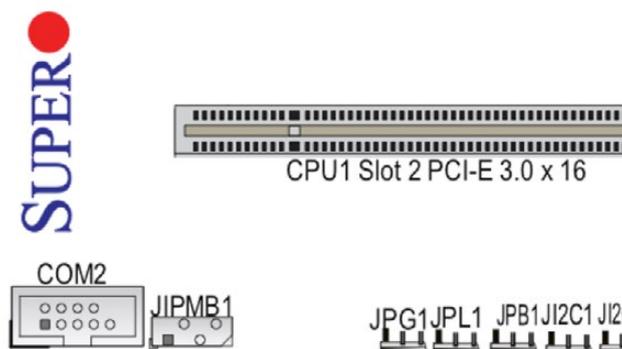
While there are too many variables to list for all motherboards the information provided here for the Supermicro SuperServer may offer the advise you need to configure your system before installing the Windows (or Linux) OS.

If in doubt we recommend that you check with your system vendor.

Supermicro Jumpers and BIOS

Follow the instructions below to set-up the display jumper to disable the onboard VGA.

- Step 1.** To change the JPG1 jumper setting on the motherboard to disable the onboard VGA graphics locate the JPG1 group of 3 pins that is near the PCI-E slot 2 on the motherboard.
- Step 2.** Remove the jumper from pins 1 and 2 and install it over pins 2 and 3 as shown in the accompanying illustration.



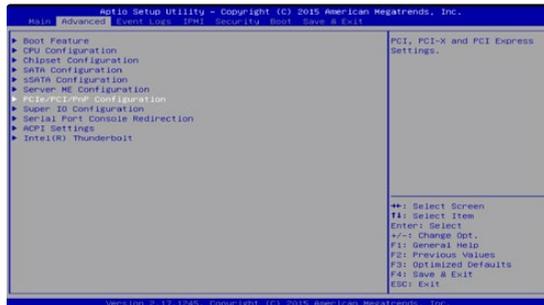
- Step 3.** Unplug all hard disks except the one where you want to install the OS and Resolve.
- Step 4.** Power up the machine. Press 'Delete' when the Supermicro logo appears on the screen in order to go into BIOS.
- Step 5.** You will see the main BIOS page shown below. Set the date and time correctly for each server.



Step 6. Use the right arrow key to go to the Advanced page shown below.



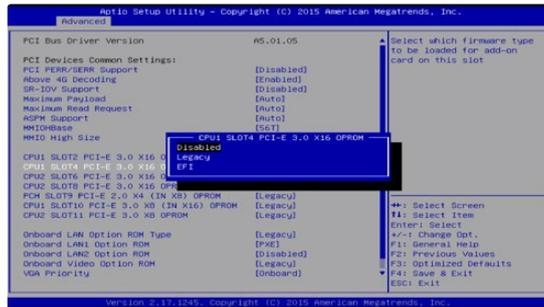
Step 7. Now arrow down to select the PCIe/PCI/PNP Configuration page and hit 'Enter'.



Step 8. In the new screen, arrow down to the CPU1 section. You will notice these all currently will indicate 'Legacy'. We are going to leave the first slot 2 for the UI GPU and step to slot 4.

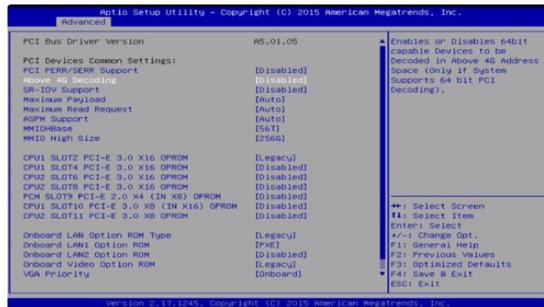


Step 9. With the slot 4 line selected hit 'Enter' and then using the arrows or -/+ keys select disable and then 'Enter' to go back to the list.

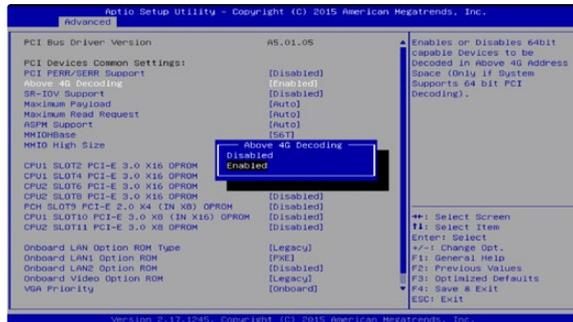


Step 10. Repeat step 8 and 9 for the other PCI-E slots. They all should be disabled with the exception of the UI slot 2.

Step 11. Then up arrow to select the item 'Above 4G Decoding' and hit 'Enter'.



Step 12. Change this selection to 'Enabled' then 'Enter'.



Step 13. Double check your configuration is as per below and then select 'Esc' to move up one screen.



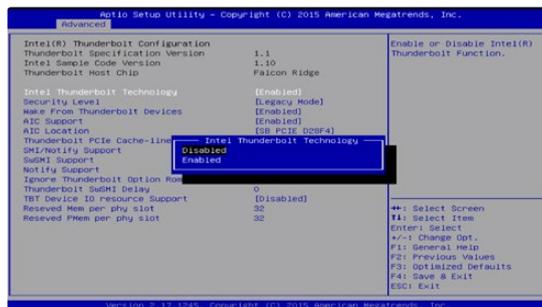
Step 14. You are now back at the screen we had in step 7. Arrow down and select 'Intel Thunderbolt'.



Step 15. Then arrow down to 'Intel Thunderbolt Technology'.



Step 16. 'Enter' then select 'Disabled' and 'Enter' again to complete this step.



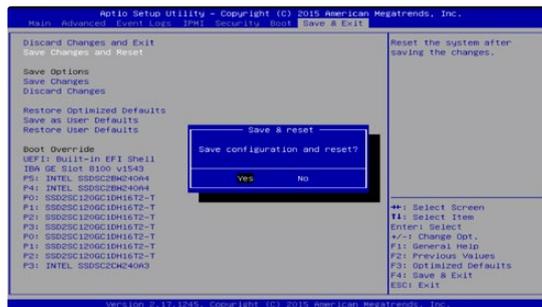
Step 17. After disabling you should see this screen below. Then select 'Esc' to move up a menu.



Step 18. On the home stretch now. Arrow to the right to select Save & Exit and 'Enter'.



Step 19. Down arrow and 'Select' Save Changes and Reset. Then confirm 'Yes'.

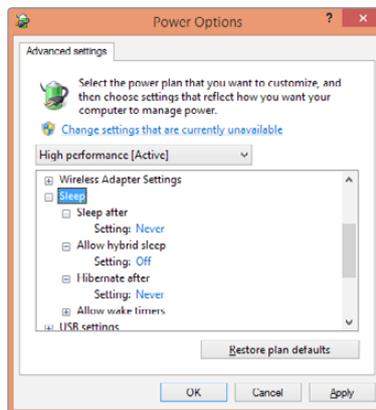


This completes the jumper and bios setup and will reboot the computer.

Power Settings

DaVinci Resolve is a demanding application and it is important to first ensure your Windows workstation is configured to avoid going in to sleep mode or hibernation.

- Step 1. From the Control Panel select on Power Options.
- Step 2. Under "Select a power plan", select "Show additional plans" and then "High Performance".

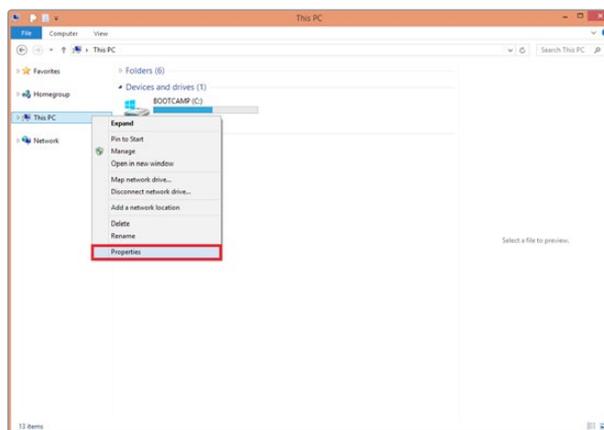


- Step 3. Select "Change plan settings" and ensure the computer is set to "Never" sleep.
- Step 4. Then select "Change advanced power settings" and ensure all the "Sleep" settings are set to "Never" or "Off".
- Step 5. Select "Apply", "OK", "Save changes" and close the control panel.

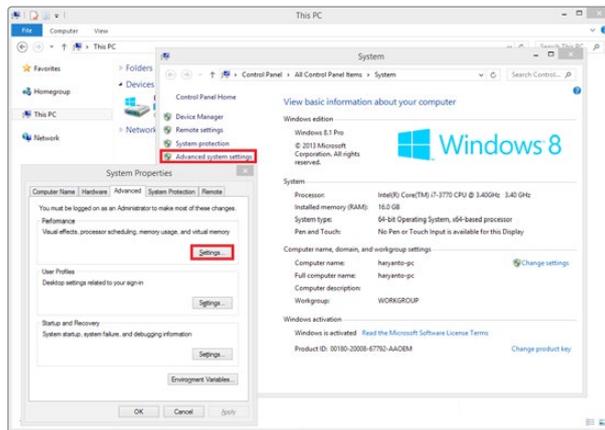
Performance Settings

You will also need to configure your Windows system for maximum performance.

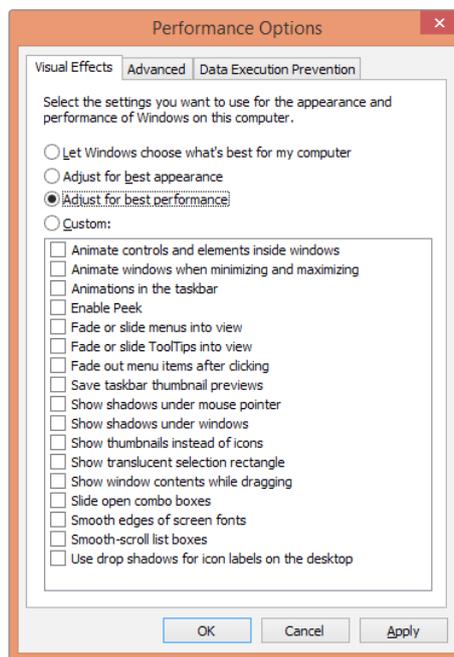
- Step 1. Right click Computer (Shown as "This PC" below) and select the Properties option.



Step 2. Then select “Advanced System Settings” and on the System Properties Advanced tab, now select “Settings”. This opens the Performance Options window.



Step 3. In the first tab, Visual Effects, select the Custom radio button. All the checkboxes below should now be de-selected and then select OK.



AMD/ATI, NVIDIA and CUDA Drivers for Windows

DaVinci Resolve uses a number of third party drivers which you may need to install or update depending on the DaVinci Resolve and OS version and also the hardware configuration you are using.

DaVinci Resolve for Windows will use CUDA processing on NVIDIA hardware and OpenCL on AMD GPUs. Note; systems running both NVIDIA and AMD hardware simultaneously is not supported on DaVinci Resolve for Windows systems.

For systems using AMD GPUs, you will need to install the correct drivers from the AMD support website.

NVIDIA CUDA GPUs

When you install your NVIDIA GPU you will need to download and install the NVIDIA driver for that specific GPU. Usually it's the latest driver for the most powerful GPU in your system that's required. If the message "WARNING: No CUDA Acceleration Hardware Detected," appears when you launch Resolve and your workstation contains the recommended NVIDIA GPUs, you will need to quit Resolve and update to the recommended NVIDIA driver.

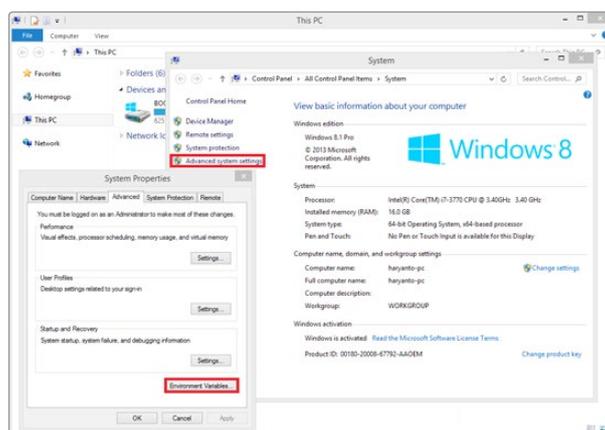
AMD GPUs

AMD provides a driver installer that you can use to automatically install and configure the appropriate drivers for your AMD GPU. You can download this installer from <http://support.amd.com/us/gpudownload/Pages/index.aspx> and follow the steps 1 through 5 to select the Workstation Graphics, GPU series and model and finally Windows 8.1 - 64 bit to then request the results from your query.

The query should provide an AMD Software suite to download and run which will install the drivers for your GPU.

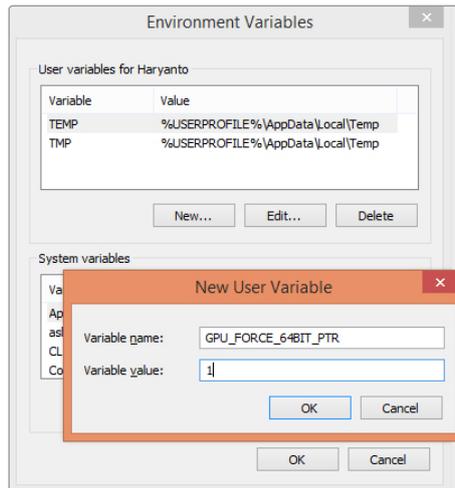
In order to enable the AMD FirePro GPUs to use their entire memory they need to run in 64-bit mode so you need to perform the following steps to configure 64-bit GPU operation.

- Step 1. Right click on 'My Computer' (Shown as "This PC" below) and select the Properties option.
- Step 2. Select the 'Advanced system settings' from the left panel to open System Properties.
- Step 3. In the 'Advanced' tab, select the 'Environment Variables' button.



Step 4. Then select 'New...' under user variables.

Step 5. Enter the variable name 'GPU_FORCE_64BIT_PTR' and variable value as 1.



Step 6. Select OK on all the windows one by one to close them.

Step 7. Start Resolve. (There is no need to restart the machine).

Installing DaVinci Resolve for Windows

Installing or updating Resolve is essentially the same process. You will need an Administrator password to install the software on your system if you are using a standard User account. We recommend that DaVinci Resolve be installed into the default Program Files folder on your startup hard disk.

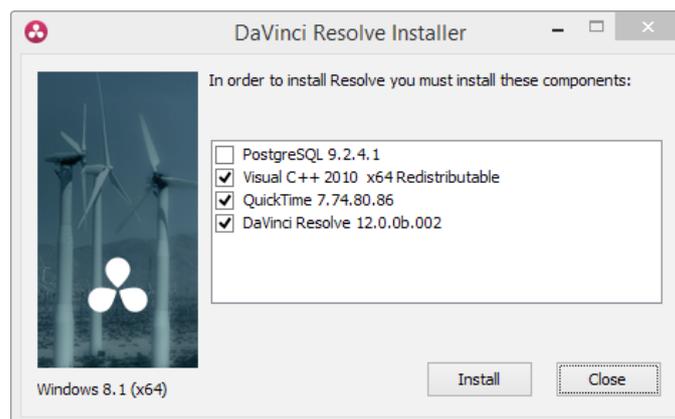
Using the installer on the SD card that came with your BMD product or DaVinci Resolve that was downloaded from the BMD web site, double click the 'DaVinci Resolve Executable' and follow the onscreen prompts to install the software.

The installation process takes just a couple of minutes. When the installation has been completed, you will be prompted to restart your workstation. The installer will add the application to the Program Files folder and will place a shortcut on your Desktop making it easy to launch DaVinci Resolve.

For the full version of DaVinci Resolve, the included USB dongle contains the Resolve for Windows license and must be connected to your computer before launching the Resolve software.

Systems with a Blackmagic Design capture and playback card for your client, edit or grading monitor you will need to install the latest Desktop Video drivers that are available from the support page at www.blackmagicdesign.com.

If you use Avid Media Composer or Adobe Premiere Pro on the same computer as Resolve, and you wish to use these applications with a DeckLink or UltraStudio, install the latest Desktop Video drivers after installing your alternative editing applications. Blackmagic Desktop Video drivers install associated easy setup options and presets for a number of other editing applications.



Important steps for first use

There are three important hardware items to configure when you first start the Resolve application.

Step 1 Open the Preferences window from the DaVinci Resolve application menu.

The first tab shows the System Overview where you select the application language and you can verify that Resolve has found your GPUs and any Red Rocket cards if installed.

Step 2 Go to the second tab, Media Storage. The first location in the storage list will become the primary location for images, all proxies, cached files and gallery stills. This location will usually not be your system disk but a specifically installed permanent disk for media. Often it's an internal or external RAID disk array and it needs plenty of storage capacity.

If you don't have a permanently connected media array on your system we recommend that you identify a folder on your system disk to use as your primary drive and folder and then add and remove other drives as needed but don't change the primary drive until you have considered how to back up and restore your stills.

Click on the "+" (add) button to add a volume, folder or mount point to the list of disk storage for your media. Click on the "-" (remove) button to remove a volume, folder or mount point from the list of disk storage.

Step 3 In the Video I/O and GPU tab select which capture and playback device you will use for capture and playback. Depending on your workflow, this device may also be connected to a VTR or camera. If you are using Resolve Live, select the video input capture device.

This tab also has selections for using a Red Rocket card if available, or use the GPU for RED image debayer. You can also select to use the Display GPU for image compute if you have DaVinci Resolve Studio and also select here if you wish to use the computer system audio output in preference to the capture and playback card.

Step 4 In the Control Panels tab choose which color grading control panel hardware you have connected to your system. DaVinci Resolve supports the current USB 2.0 generation of DaVinci Resolve control panel but can also be used with third party panels from Avid, JLCooper, Oxygen Tec and Tangent Devices. Details on connection follow later in this guide.

The Advanced tab is generally not required by most facilities as it's for specific system configurations. You should leave this blank unless directed otherwise.

Step 5 After changing any of these preferences select save and restart the DaVinci Resolve application.

DaVinci Resolve for Linux

Overview and system selection

We recommend Mac or Windows systems for their ease of configuration and use, their simple files systems and off the shelf components that generally plug and play. In comparison, Linux systems have a very rudimentary operator desktop, have the most restrictive hardware options, require exacting configuration and also a high performance file system. The DaVinci Resolve for Linux is also only available in the DaVinci Resolve Studio version and it is included with the DaVinci Resolve Advanced Control Surface.

The Linux OS does however offer an extremely reliable and powerful platform for facilities that consistently need high performance with high-resolution files from various codecs and is therefore the system of choice for the largest facilities in Hollywood and beyond. There are hardware configurations detailed below starting from a single dedicated GPU for image processing up to eight GPUs in one system and when configured with the more powerful GPUs this system is suitable for stereoscopic grading and 4K video.

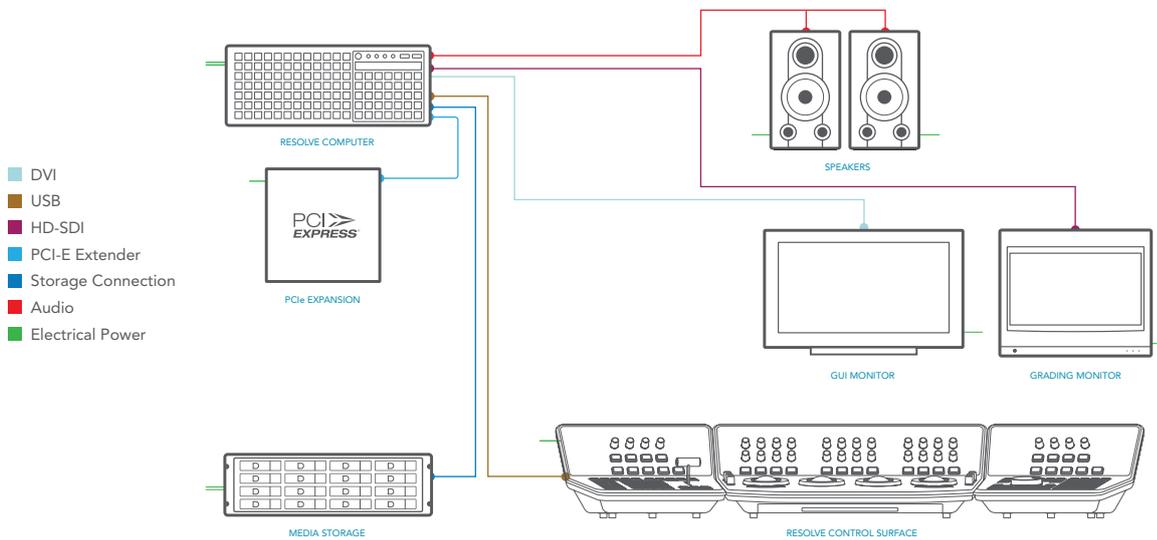
If you have experience in configuring CentOS or RedHat Linux systems and installing a storage area network file system (SAN), or you have a system integrator that has that experience, then this guide will assist you to build the world's highest performing editing, color grading and finishing system. Alternatively, without that experience we recommend you explore the Mac and Windows systems listed above.

All systems support the use of a PCIe expander to add extra PCIe slots and power. However additional PCIe cards in the computer, such as capture, storage or even an expander HBA, should only be added to the slots shown in the tables below to avoid causing a slow down in the performance of the UI and image processing GPU cards.

For all systems using an expander, we generally recommend that you install a single UI GPU in your computer and have all image processing GPUs in the expander. While this guide refers to configs with up to six GPUs, there are now third party systems available with more image processing GPUs and for users interested in those configs please contact the vendor directly. You will also find below a list of suppliers who can offer turnkey systems of various performance levels and prices.

Please note that you cannot mix GPUs from the major suppliers, AMD/ATI and NVIDIA in the one system. We recommend using the same model GPU if multiples are used with the exception of the UI GPU if it's not sharing processing tasks. A number of GPU options are listed below, as are options for media storage, file system and accessories.

Typical Configuration



Supermicro SuperServer

The Supermicro SuperServer 7048GR-TR is a powerful configuration suitable for stereoscopic grading, UHD and 4K-DCI video. It can be used as a desktop tower or rack-mounted and contains redundant power supplies.

It provides very fast image processing using up to four, double-width, PCIe3.0 x16 slots for greater throughput and flexibility. One of these slots is used for the UI and the other for image processing GPUs. Please see the recommended slots use in the tables below to avoid causing a slow down in the performance of the UI and image processing GPU cards.

The Supermicro SuperServer is also the certified platform for Linux configurations should you wish to upgrade in the future.

For the recommended Supermicro systems, check the jumper configuration and BIOS as indicated in the Windows section above called "Before you start, Windows hardware, BIOS & OS configuration".

Please also refer to the GPU driver information and the following DaVinci Resolve installation instructions and the important Linux configurator operation to get you started.



HP Z840

A number of DaVinci Resolve facilities utilize the HP Z840 Workstation as provides a flexible and simple workhorse for previewing and grading material up to and including 4K. As this system has dual CPUs it is suitable for decompressing hi-res files, such as 4K, 5K and 6K camera Raw.

Configuration details are not specified in this guide however your computer supplier should be able to assist in setting the BIOS and guiding you on storage connection.

Turnkey solutions

There are a number of vendors who offer turnkey systems configured for operation with DaVinci Resolve. While some options are listed here please refer to their specific configurations and after sales support to ascertain the suitability for your needs.

Boxx Systems

www.boxxtech.com

Cubix

www.cubix.com/accel-app-solutions

Installing Linux

In this section you will create a Linux DVD, either using the BMD supplied SD for CentOS 6.6 or a RedHat DVD if required by your storage file system vendor. Then using that DVD you will install the OS and then configure the system. Users with legacy multiple server systems should refer to the 2014 configuration guide and follow those instructions with the 2014 configuration generator.

During the installation the application may erase and format any attached storage drives, load the OS and configure a number of drivers. This installation process will take some time so please be patient.

Making the installer DVD

Step 1. On another CentOS or RHEL system, extract your BMD supplied or third party supplied CentOS or RHEL 6.6 ISO image to a directory (for example /CENTOS_IMAGE or /RHEL_IMAGE)

Step 2. Mount the BMD supplied Resolve SD Card to a folder (for example /mnt/Resolve_SDcard)

Step 3. Open Terminal and type

```
> cd /CENTOS_IMAGE
```

```
> select return, then type
```

```
> /mnt /Resolve _ SDcard/copy_postinstall_files.sh/CENTOS_RESOLVE_DVD.iso
```

Note: /CENTOS_RESOLVE_DVD.iso will be the new 6.6 ISO Resolve installer DVD.

Step 4. Burn that ISO to a DVD.

Step 5. Insert the Resolve iso DVD that you just made, or the RHEL version if you require that OS, into the DVD drive of your new DaVinci Resolve hardware and restart the server. If the server fails to boot from the DVD drive, change the boot sequence in the BIOS settings to 'DVD then primary hard drive'. Once the server has successfully booted from the DVD you should see the screen below.



Step 6. The installer permits multiple server configurations to be made however we are only interested in #1, the Chassis A GUI server.

Select "1" then "enter". During this process the primary/system drive will be formatted with partitions, the OS and drivers loaded and then a number of applications and files will be installed on the drive.

- Step 7.** When the installation is finished remove the DVD, restart the server and verify it starts without reporting errors.
- Step 8.** We recommend then performing a “cold boot” test by completely shutting down the server, wait 10 seconds and then power it up again. Make sure the server starts without errors or lengthy boot delays and check the mouse and keyboard work.

This concludes the OS installation phase of the servers.

Note: After the OS install and check you can choose to proceed with either the Resolve configuration and application installer or to install the disk storage file system.

If the disk storage file system is installed next, you can test this with the server or you can first run the Resolve configurator and install the Resolve application followed later by the disk storage file system.

It does not matter in which order these tasks are performed.

Storage subsystem connection and file system installation

If you now connect your media storage, via direct RAID controller, fibre channel or bonded GigE, the next step is to install the StorNext file system. Alternatively you can proceed to the DaVinci Resolve Configuration Generator section below.

Please consult with your local Quantum StorNext distributor and/or your storage subsystem vendor for installation and configuration guidance. We have certified StorNext version 4.7, 4.3 and legacy 3.5.2 systems with Resolve.

In a DAS configuration, Resolve hosts the server and client for StorNext. Your StorNext installer or IT engineer can open a shell and run the StorNext installation following the guidelines set by Quantum. You will also need to enter the StorNext license that is obtained from Quantum.

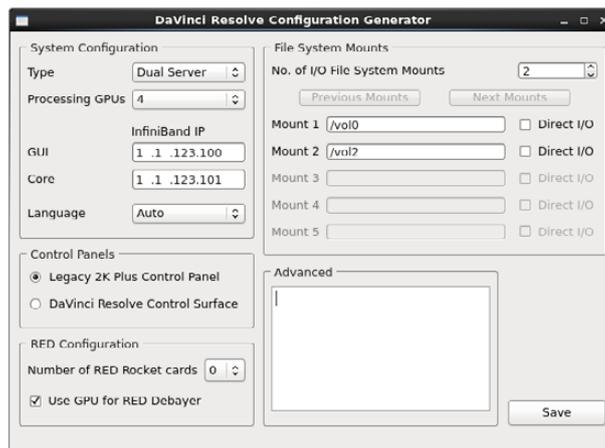
In a SAN configuration, Resolve is a client and the metadata controller (MDC) holds the license information. Your StorNext installer will configure Resolve with the IP address of the MDC. Quantum also offers a complete turnkey file system including the MDC and storage should you desire this one stop solution for installation and support.

DaVinci Resolve Configuration Generator; configuring Resolve for your hardware

Once the Linux OS installation has been completed you can now configure DaVinci Resolve for your hardware. The 'DaVinci Resolve Linux Configuration Generator' is used to provide Resolve with details of your Linux GPUs, Red Rocket (X) cards and file system type and mount points.

Previously this generator was used to configure and connect via InfiniBand two or more Linux chassis to allow eight and more GPUs per system. While legacy multiple-server systems are still supported the dramatic advances in GPU technology now allow 4K 60 stereoscopic operation with a single server and a PCIe expander.

All new Linux Resolve systems are recommended to use the single server configurations as indicated below and in the near future the multiple server support and software will be deprecated. We recommend users of the older multiple server systems to upgrade to obtain the speed advantages of the new PCIe Gen 3.0 motherboards, expanders and the latest GPU technology.



Resolve Configuration steps

- Step 1.** With the server powered off, connect the Resolve software dongle to one of the USB ports. The dongle needs to be connected before attempting to install and run the Resolve application.
- Step 2.** Start the server and select "Configure DaVinci Resolve" from the home DaVinci Resolve menu.
The 'DaVinci Resolve Linux Configuration Generator' window will open allowing you to set a number of parameters and also review any preconfigured IP addresses from the selected system configuration.
- Step 3.** To configure the system, first select the number of image processing GPUs from the pop-up menu, e.g. 1 GPU, 2, 3, 6 etc.
- Step 4.** Then select the DaVinci Resolve panel type your system will use, i.e. a new Resolve Control panel or the legacy DaVinci 2K+ panel.

Step 5. Next select the number of file system mounts. Most systems with direct attached storage (DAS) will have one but some will have two or many more.

Once the number of file system mounts has been selected, the next step is to specify the path to these. You will find a few sample files on the primary hard drive so you can test the Resolve application even if you do not have your high-speed disk storage ready.

Step 6. Unless you are setting up the final file system now, type `"/vol0"` into the first file system text box.

When the Resolve server is subsequently attached to high-speed disk storage, the first file system mount path should promptly be changed from `"/vol0"` to the mount path of the high-speed disk storage.

If you have or will have a StorNext file system, type the path in the text box, e.g. `"/mnt/nl01"`. Keep adding mount points for each file system. Some facilities have a dozen or more file systems so please enter each of the mount points on page 1 and then select page 2, or more pages, for additional mount points.

If your facility has CXFS file system storage, select the Direct I/O checkbox.

Step 7. Leave the text entry 'Advanced' field blank. This may be required for a special configuration at the direction of BMD support.

Step 8. If you have installed a Red Rocket or Rocket X card, select the appropriate number from the "Number of RED Rocket cards" popup menu.

Step 9. Now that you have completed these steps, click 'Save'.

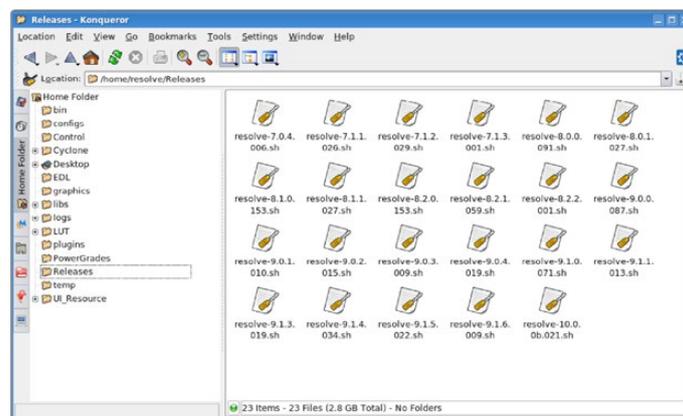
The Resolve configuration will be saved immediately and the window will continue to display the saved settings. If you reopen 'Configure DaVinci Resolve' in the future, for example when you wish to add or change a file system mount point, the last saved configuration will be shown. Should you make any changes to the settings select "save" before exiting the application.

This concludes the Resolve configuration phase of the servers.

Installing DaVinci Resolve for Linux

Installing or updating Resolve is essentially the same process.

Double-click the 'Home' icon on the desktop and, in the resulting window, open the 'Resolve' folder to reveal the 'Releases' folder. Any future version updates to the Resolve application should be put into the 'Releases' folder to make installation easy.



Find the installer on the SD card that came with your BMD product or DaVinci Resolve that was downloaded from the BMD web site and copy that file to the 'Releases' folder.

Double-click the software version you wish to install and installation should complete in just a few minutes. Updates to the DaVinci Resolve application will load in quite a similar manner to the initial installation, with the exception that colorist configuration and project files will not be overwritten.

When the installation has been completed, you may wish to restart the server but it's not required. It's easy to launch the app from the DaVinci Resolve menu or the Desktop Icon.

Systems with a Blackmagic Design capture and playback card for your client, edit or grading monitor you will need to install the latest Desktop Video drivers that are available from the support page at www.blackmagicdesign.com.



Final setup checks

Once the application installation is complete, please reboot the server(s). Testing can be performed at this stage, prior to installing the StorNext file system if you have not completed that yet.

You will find four icons on the UI server desktop: 'Home' will take you to the top directory, which is a helpful place to be when you want to move files such as EDLs and audio.

- 'DaVinci Resolve' launches the Resolve application with a double-click.
- When the application is open, choose 'Quit' to exit the application.
- 'Storage' quickly provides a graphical listing of all connected drives, including USB flash drives.
- 'Shutdown' commands the Linux OS to cleanly turn off the system.

To test the system, double-click the DaVinci Resolve icon to launch the application. Log in as a guest user by double clicking on "Guest" and Resolve will open on the Project Manager. Leave all the settings as they are.

On the media page, look for vol0 or whichever file system mount was specified in the DaVinci Resolve Configuration Generator. Select the QuickTime or DPX files with a single click and then play them in the viewer.

You can add clips to the media pool with a double click. These clips are QuickTime or DPX from the system disk and are just for testing. Realtime performance is not expected as you are testing these few clips from the single system drive. For normal operation you will need to have images stored on your high-speed disk array using the StorNext file system.

Go to the color page and verify the system adjusts the grade by using the mouse to control the lift, gamma or gain RGB settings and/or the master gain setting. While using the system with the Resolve panels is far quicker and more intuitive, all operations are controllable using a mouse.

DaVinci Resolve remote database server

With the number of facilities using multiple DaVinci Resolve systems and the introduction of the Collaboration workflow a number of users are now installing the DaVinci Resolve remote database server in their facilities. It's also an ideal way to have all your projects in one common location for daily backup.

This operation is only available users of DaVinci Resolve Studio as a license dongle is required on each system connected to the server.

Using a modern Mac computer, for example a Mac Mini, install DaVinci Resolve Studio for Mac just as if you were to run the application on this machine. You don't need to install any special hardware, just install Resolve so a copy of the PostGres application can be placed in the appropriate location on your system.

Once you have installed the DaVinci Resolve Studio and PostGres software and restarted the system, you need to set up the permissions and access to the PostgreSQL server application running on this machine.

You must follow the instructions carefully.

- From the Applications/Utilities folder open Terminal and type
- `sudo su - postgres`
- At the prompt enter the computer's administrator password, then return
- You should see "postgres\$" followed by the cursor; next type
- `cp /Library/PostgreSQL/8.4/data/pg_hba.conf /Library/PostgreSQL/8.4/data/pg_hba.conf.backup`
- In the next step you will add your local IP network range, e.g. 192.168.1.0 so change the IP address below to suit your range and type
- `echo "host all all 192.168.1.0/24 md5" >> /Library/PostgreSQL/8.4/data/pg_hba.conf`
- Then restart the Mac.

Note: You should not change the /24 in the IP address entry above. Just change the actual IP address range.

You now have a remote database server that you can connect to your Resolve systems via your standard IP network. The PostgreSQL application will run automatically so be sure to leave this Mac on whenever you wish to connect to your Resolve. On each of your Resolve systems, use the database manager to connect to the databases on the remote database server using the IP address to identify the server.

You can continue to use the local database on your Resolve or 'Select' the remote database to share projects with other Resolve systems.

Shopping Guide

Mac OS X Systems

Blackmagic Design items for Mac OS X

DaVinci Resolve Studio for Mac Application

<http://www.blackmagicdesign.com>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

DaVinci Resolve Advanced Panel

<https://www.blackmagicdesign.com/products/davinciresolve>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Blackmagic Design Capture and Playback Card

UltraStudio Extreme

UltraStudio 4K

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Please refer to the Blackmagic Design web site for feature set details.

Note: HD-SDI I/O and HDMI output is supported by DaVinci Resolve

Alternatives with a different feature set

UltraStudio 3D

UltraStudio Express

Intensity Extreme

Mini Monitor

Mini Recorder

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Apple Hardware

Apple MacPro

Late 2013 model, 12 Core Dual D700 GPU

2.7GHz Intel Xeon E5 12 Core processor

32GB system RAM recommended

1TB PCIe-based internal flash storage

Dual AMD FirePro D700 GPUs

<http://www.apple.com/mac/>

Where to Buy

<http://store.apple.com/>

Apple iMac with Retina Display

Late 2014 27" Retina 5K model, quad-core i7

4.0GHz Intel Core i7 processor

16GB system RAM recommended

1TB Internal flash storage

AMD Radeon R9 M295X 4GB

<http://www.apple.com/imac>

Where to Buy

<http://store.apple.com/>

Alternatives with a different feature set

Apple iMac

Late 2013 27" model, quad-core i7

3.5GHz Intel Core i7 processor

16GB system RAM recommended

512GB Internal flash storage

NVIDIA GeForce GTX780M 4GB GPU

<http://www.apple.com/imac>

Where to Buy

<http://store.apple.com/>

Apple iMac with Retina Display

Mid 2015 27" model, quad-core i5

3.3GHz Intel Core i5 processor

16GB system RAM recommended

512GB Internal flash storage

AMD Radeon R9 M290 2GB GPU

<http://www.apple.com/imac>

Where to Buy

<http://store.apple.com/>

Apple MacBook Pro with Retina Display

Mid 2015 15" model, quad-core i7

2.8GHz Intel Core i7 processor

16GB system RAM recommended

512GB PCIe internal flash storage

AMD Radeon R9 M370X with 2GB memory

<http://www.apple.com/macbook-pro>

Where to Buy

<http://store.apple.com/>

Alternatives with a different feature set

Apple MacBook Pro with Retina Display

Early 2015 13" model, dual-core i5
 2.9GHz Intel Core i5 processor
 16GB system RAM recommended
 512GB PCIe internal flash storage
 Intel Iris Graphics 6100
<http://www.apple.com/macbook-pro>
 Where to Buy
<http://store.apple.com/>

Apple MacBook

Limited performance for more than HD ProRes
 Early 2015 12" model, dual-core M
 1.3GHz with 2.9GHz boost Intel Core M processor
 8GB system RAM
 512GB PCIe internal flash storage
 Intel Iris Graphics 5300
<http://www.apple.com/macbook/>
 Where to Buy
<http://store.apple.com/>

Apple Mac mini

Optional Central Database Server (DaVinci Resolve Studio users)
 Late 2014 model, dual-core i7
 3.0GHz Intel Core i7 processor
 16GB system RAM
 512GB PCIe internal flash storage
 Intel Iris Graphics 5100
<http://www.apple.com/macmini/>
 Where to Buy
<http://store.apple.com/>

UI Monitor Options

Apple

Apple Thunderbolt Display 27"
<http://www.apple.com/displays/>
 Where to Buy
<http://store.apple.com/>

Dell

Dell UltraSharp 27" Ultra HD 5K monitor
<http://accessories.us.dell.com/sna/productdetail.aspx?c=us&cs=04&l=en&sku=UP275K3>
 Where to Buy
<http://www.dell.com>

Windows Systems

Blackmagic Design items for Windows

DaVinci Resolve Studio for Windows Application

<http://www.blackmagicdesign.com>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

DaVinci Resolve Advanced Panel

<https://www.blackmagicdesign.com/products/davinciresolve>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Blackmagic Design Capture and Playback Card

DeckLink 4K Extreme 12G

with optional DeckLink 4K Extreme 12G - Quad SDI

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Please refer to the Blackmagic Design web site for feature set details

Note: HD-SDI I/O and HDMI output is supported by DaVinci Resolve

Alternatives with a different feature set

DeckLink 4K Extreme

DeckLink Studio 4K Studio

Mini Monitor

Mini Recorder

UltraStudio Pro (See special USB 3 requirements)

UltraStudio SDI (See special USB 3 requirements)

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Windows OS Options

Microsoft Windows 8.1 Professional, 64-bit

<http://windows.microsoft.com/en-us/windows-8/meet>

Where to Buy

<http://windows.microsoft.com/en-US/windows/buy>

Microsoft Windows 10 Professional

<http://www.microsoft.com/en-us/windows/features>

Where to Buy

<http://windows.microsoft.com/en-US/windows/buy>

Generic PC

ASUS Motherboard

ASUS X99 Deluxe

Intel Socket 2011-v3 Core i7

16GB (4 x 4GB RAM) DDR4-3200 SDRAM

<https://www.asus.com/us/Motherboards/X99DELUXE/>

Where to Buy

<http://shop.asus.com/>

Generic Chassis

Generic ATX chassis such as Cooler Master HAF 932 Advanced

<http://www.coolermaster.com/case/full-tower/haf-932-advanced/>

Where to Buy

<http://www.coolermaster.com/service/whereToBuy.html>

Power Supply

1000W or greater ATX PSU such as Corsair Professional Series HX1050 Power Supply

<http://www.corsair.com/en/hx-series-hx1050-power-supply-1050-watt-80-plus-gold-certified-modular-psu>

Where to Buy

<http://www.corsair.com/en/where-to-buy>

Other Components

512GB SSD or SATA 7200 1TB system hard drive

DVD-RW drive, SATA, Black

Where to Buy

Your local computer outlet

Workstations

HP Z840

Dual Intel Xeon E5-2697 v3 (dual 14 core) (Dual 8 core is minimum recommended)

32GB RAM (8x4GB memory sticks) or higher

Use pairs of 4 for maximum memory bandwidth

SATA 7200 1TB system hard drive

1 x DVD-RW drive, SATA, Black

<http://www8.hp.com/us/en/campaigns/workstations/z840.html>

Where to Buy

<http://www8.hp.com/us/en/campaigns/workstations/z840.html>

Supermicro SuperServer

Black 4RU Rackmountable/Tower

Dual Intel Xeon E5-2697 v3 (dual 14 core; dual 8 core is minimum recommended)

32GB (8x4GB memory sticks) or more ECC DDR4-2133 SDRAM

Use the same size RAM in all eight slots for maximum RAM access speed

Intel SSD530 480GB SSD SATA system drive or larger

DVD-RW drive, SATA, Black

<http://www.supermicro.com/products/system/4u/7048/sys-7048gr-tr.cfm>

Where to Buy

<http://www.supermicro.com.tw/wheretobuy/index.cfm>

Laptops

Dell Precision M6800

Intel Core™ i5 or i7 processors

16GB minimum system RAM

NVIDIA Quadro K5100M; 8GB GDDR5 GPU (or at least NVIDIA Quadro K4100M; 4GB)

512GB SSD minimum system hard drive

1 x DVD-RW drive

http://www.dell.com/us/business/p/precision-m6800-workstation/pd?ref=PD_OC

Where to Buy

<http://www.dell.com/us/business/p/precision-m6800-workstation/fs>

Linux Systems

Blackmagic Design items for Linux

DaVinci Resolve Studio for Linux Application

Available with the DaVinci Resolve Advanced Control Surface

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

DaVinci Resolve Advanced Panel

<https://www.blackmagicdesign.com/products/davinciresolve>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Blackmagic Design Capture and Playback Card

DeckLink 4K Extreme 12G

with optional DeckLink 4K Extreme 12G - Quad SDI

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Please refer to the Blackmagic Design web site for feature set details

Note: HD-SDI I/O and HDMI output is supported by DaVinci Resolve

Alternatives with a different feature set

DeckLink 4K Extreme

DeckLink Studio 4K Studio

Mini Monitor

Mini Recorder

UltraStudio Pro (See special USB 3 requirements)

UltraStudio SDI (See special USB 3 requirements)

<http://www.blackmagicdesign.com/products/>

Where to Buy

<http://www.blackmagicdesign.com/resellers/>

Linux OS Options

DaVinci Resolve Studio for Linux uses CentOS 6.6 in a specific configuration. BMD supplies an OS installation iso file with the license dongle that will format your system disk and install multiple partitions and drivers for the required kernel.

CentOS 6.6 is a binary compatible version of RedHat so Resolve will operate on that compatible version. System integrators and customers who build and configure the Linux systems are responsible for the correct installation of the OS and the matching file system.

Linux Workstations

Supermicro SuperServer 7048GR-TR

Black 4RU Rackmountable/Tower

Dual Intel Xeon E5-2697 v3 (dual 14 core; dual 8 core is minimum recommended)

32GB (8x4GB memory sticks) or more ECC DDR4-2133 SDRAM

Use the same size RAM in all eight slots for maximum RAM access speed

Intel SSD530 480GB SSD SATA system drive or larger

DVD-RW drive, SATA, Black

<http://www.supermicro.com/products/system/4u/7048/sys-7048gr-tr.cfm>

Where to Buy

<http://www.supermicro.com.tw/wheretobuy/index.cfm>

Alternative with a different feature set

HP Z840

Dual Intel Xeon E5-2697 v3 (dual 14 core) (Dual 8 core is minimum recommended)

32GB RAM (8x4GB memory sticks) or higher

Use pairs of 4 for maximum memory bandwidth

SATA 7200 1TB system hard drive

1 x DVD-RW drive, SATA, Black

<http://www8.hp.com/us/en/campaigns/workstations/z840.html>

Where to Buy

<http://www8.hp.com/us/en/campaigns/workstations/z840.html>

Media Storage

Thunderbolt Storage

Multiple alternative options shown

G-Technology G Speed Studio XL

<http://www.g-technology.com/products/g-speed-studio-xl>

G-Technology G RAID with Thunderbolt

<http://www.g-technology.com/products/g-raid-thunderbolt-2>

Where to Buy

<http://www.g-technology.com/where-to-buy>

PROMISE Pegasus2 R8, 8 Bay RAID

<http://www.promise.com/Products/Pegasus/Pegasus2/R8>

PROMISE Pegasus2 R6, 6 Bay RAID

<http://www.promise.com/Products/Pegasus/Pegasus2/R6>

PROMISE Pegasus2 R2+

<http://www.promise.com/Products/Pegasus/Pegasus2/R2plus>

Where to Buy

<http://www.promise.com/Where2Buy>

CalDigit T4 RAID

<http://www.caldigit.com/T4/>

CalDigit T3 RAID

<http://www.caldigit.com/T3/>

Where to Buy

<http://www.caldigit.com/Purchase.asp>

Accusys A08S2-TS, 8 Bay RAID +C1M

<http://www.accusys.com.tw/ExaSAN/A08S2-TS.html>

Where to Buy

<http://www.accusys.com.tw/Buy/Reseller.html>

Lacie 5big Thunderbolt 2

<http://www.lacie.com/as/en/products/thunderbolt/5big-thunderbolt-2/>

Lacie 8big Rack Thunderbolt 2

<http://www.lacie.com/as/en/products/thunderbolt-rackmount/>

Where to Buy

<http://www.lacie.com/as/en/where-to-buy/>

PCIe Attached Storage

Multiple alternative options shown

Accusys A08S3-PS, 8 Bay RAID

<http://www.accusys.com.tw/ExaSAN/A08S3.html>

Accusys A16S3-PS, 16 Bay RAID

<http://www.accusys.com.tw/ExaSAN/A16S3-PS.html>

Accusys SWF16, PCIe Switch

<http://www.accusys.com.tw/ExaSAN/SWF16-V2.html>

Where to Buy

<http://www.accusys.com.tw/Buy/Reseller.html>

Facilis Technology TerraBlock, 24 Bay RAID

<http://facilis.com/product/terrablok/>

Where to Buy

<http://facilis.com/sales/>

Storage File System

Quantum StorNext v4.7

<http://www.quantum.com/products/software/stornext/index.aspx>

Where to Buy

<http://www.quantum.com/wheretobuy/index.aspx>

HBAs for Fibre Channel Attached Storage

Multiple alternative options shown

HBA for Fiber Channel SAN External Storage

ATTO 16Gbps Dual Channel PCIe Fiber Channel HBA

Model: CTFC-162E-000

<http://www.attotech.com/products/product.php?cat=1&scat=33&prod=108&sku=CTFC-162E-000>

ATTO 16Gbps Single Channel PCIe Fiber Channel HBA

Model: CTFC-162E-000

<http://www.attotech.com/products/product.php?cat=1&scat=33&prod=109&sku=CTFC-161E-000>

Where to Buy

<http://www.attotech.com/store/>

Fibre Channel Attached Storage

Multiple alternative options shown

Dot Hill

Model: AssuredSAN 4000

<http://www.dothill.com/storage-arrays/assuredsan-4000-san-storage/>

Where to Buy

<http://www.dothill.com/how-to-buy/>

Scale Logic Genesis RX RAID Series

Genesis RX 12

<http://www.scalelogicinc.com/images/pdf/2014/SLI%20Genesis%20RX%2012Bay%2001-25-14.pdf>

Genesis RX 24

<http://www.scalelogicinc.com/images/pdf/2014/SLI%20Genesis%20RX%2024Bay%2001-25-14.pdf>

Genesis RX 36

<http://www.scalelogicinc.com/images/pdf/2014/SLI%20Genesis%20RX%2036Bay%2001-25-14.pdf>

Scale Logic also offer OS agnostic SAN file system.

Please contact them for details.

<http://scalelogicinc.com/html/hyperfs-file-system.php>

Where to Buy

<http://scalelogicinc.com/html/contact-us.php>

Facilis Technology TerraBlock, 24 Bay RAID

<http://facilis.com/product/terrablok/>

Where to Buy

<http://facilis.com/sales/>

GPU selection

DaVinci Resolve performs all image processing in the GPU so selection is important based on the clip type, resolution of the clips and timeline, the processes selected within Resolve and of course final render resolution. Even the debayer of Camera Raw media is performed in the GPU so any 4K, 6K or 8K camera raw files need a large amount of GPU RAM and compute power even if you are using just an HD timeline.

Some of the image processing operations in DaVinci Resolve, temporal noise reduction, optical flow speed changes, motion effects and OpenFX plugins, also need large GPU memory for operation and utilize a single GPU regardless of the number installed. These processes might not be available or operation could be restricted on GPUs with limited memory so consider this when selecting your GPU from the options below.

For processing UHD or 4K-DCI images we recommend 8GB or more of GPU memory (RAM). For some operations 4GB will be sufficient. 2GB is not recommended.

For HD image processing 3GB of GPU RAM is normally sufficient for most operations and even 2GB is usable for basic editing and grading.

When selecting GPUs, they all need to be from the same supplier, either NVIDIA or AMD/ATI. For multiple GPU configurations, you should use the same model GPU for all processing GPUs. You can use a different model just for the UI monitor as long as all the GPUs are from the same manufacturer and can use the same driver. e.g. a K4200 with NVIDIA or W7000 with AMD.

NVIDIA Options

Multiple alternative options are shown in no particular order

NVIDIA Quadro M6000

12GB GDDR5 SDRAM

<http://www.nvidia.com/object/quadro-desktop-gpus.html>

NVIDIA Quadro K5200

8GB GDDR5 SDRAM

<http://www.nvidia.com/object/quadro-desktop-gpus.html>

Recommended for UI GPU Only

NVIDIA Quadro K4200

4GB GDDR5 SDRAM

<http://www.nvidia.com/object/quadro-desktop-gpus.html>

NVIDIA GeForce GTX TITAN X

12GB GDDR5 SDRAM

<http://www.geforce.com/hardware/desktop-gpus/geforce-gtx-titan-X>

NVIDIA GeForce GTX 980

4GB GDDR5 SDRAM

<http://www.geforce.com/hardware/desktop-gpus/geforce-gtx-980>

<http://www.geforce.com/hardware/desktop-gpus/geforce-gtx-titan-x>

(Select the GPU and then 'Compare and Buy')

NVIDIA GeForce GTX 780

3GB GDDR5 SDRAM

<http://www.geforce.com/hardware/desktop-gpus/geforce-gtx-780>

Where to Buy

<http://www.nvidia.com/object/workstation-wtb.html>

AMD/ATI GPUs

AMD Firepro W9100

16GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/workstation/firepro-3d/9100>

AMD Firepro W9000

6GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/workstation/firepro-3d/9000>

AMD Firepro W8000

4GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/workstation/firepro-3d/8000>

AMD Firepro W7000 (UI Only)

4GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/workstation/firepro-3d/7000>

Where to Buy

<http://shop.amd.com/en-us>

Expanders

Windows and Linux desktop or rack mount computers offer connection to an external expander chassis via its PCIe motherboard connector. This permits extra GPUs to be installed for use by the unique processing controller in DaVinci Resolve Studio. While there are a number of expanders available in the market only a few have been tested and certified for use with DaVinci Resolve.

At this time there are no Thunderbolt expanders certified for use with GPUs however you can use a Thunderbolt expander for a fibre channel adapter, storage interface or raid controller or a Red Rocket or Rocket X card.

If you use one of the chassis recommended in the Windows or Linux sections you must install the expander HBA in the PCIe slot indicated and then your image processing GPUs in the expander as indicated. The UI GPU should remain in the main computer, as should the DeckLink and a RAID controller if installed.

Note: There are multiple PCIe expander options listed below. Not all offer Gen 3.0 x16 speed to every slot and the power supply limits on some expanders make them suitable for only one or two GPUs especially if a RED Rocket card is also installed.

PCIe Expansion Chassis Options

Multiple alternative options are shown in no particular order

CUBIX GPU-Xpander Desktop Elite

Model: XPDT-G3-ELDHE5 (Hi-flow exhaust)
<http://www.cubixgpu.com/xpander-desktop>

CUBIX GPU-Xpander Rackmount Elite

Model: XPRM-G3-ELRHE
<http://www.cubixgpu.com/xpander-rackmount-elite>

CUBIX GPU-Xpander Rackmount 8

Model: XPRM-G3-82A
<http://www.cubix.com/xpander-rackmount>
 Where to Buy
<http://www.cubixgpu.com/catalog>

Cyclone PCIe2-2707 (five slot)

www.cyclone.com/products/expansion_systems/600-2707.php
 Where to Buy
<http://www.cyclone.com/purchase/process.php>

NetStor NA255A-XGPU

http://www.netstor.com.tw/_03/03_02.php?MTEEx
 Where to Buy
http://www.netstor.com.tw/_06/06.php

Thunderbolt Expanders

Multiple alternative options are shown in no particular order

Magma ExpressBox 3T

<http://www.magma.com/expressbox-3t>

Magma ExpressBox 1T

<http://www.magma.com/expressbox-1t>

Where to Buy

<http://www.magma.com/where-to-buy>

NetStor NA211TB

Expander

http://www.netstor.com.tw/_03/03_02.php?MTEy

NetStor NA211TB-LD

Expander + storage

http://www.netstor.com.tw/_03/03_02.php?MTE2

NetStor NA333TB

3U 16 bay storage enclosure with 3xPCIe expansion slots

http://www.netstor.com.tw/_03/03_02.php?MTA4

NetStor NA381TB

4U 24 bay storage enclosure with 3xPCIe expansion slots

http://www.netstor.com.tw/_03/03_02.php?MTE3

Where to Buy

http://www.netstor.com.tw/_06/06.php

Sonnet ECHO Express III

<http://www.sonnettech.com/product/thunderbolt/index.html>

Where to Buy

<http://secure1.sonnettech.com>

Accessories

Logic keyboard Apple DaVinci Resolve

Model: LKBU-RESOLVE-AM89-US

<http://www.logickeyboard.com/shop/apple-davinci-resolve-2952p.html>

Where to Buy

<http://www.logickeyboard.com/shop/apple-davinci-resolve-2952p.html>

Logitech 3-Button Optical USB Mouse

Where to Buy

Your local computer supplier

Optional USB 2.0 Extender

ICRON USB 2.0 Ranger 2204

<http://www.icron.com/products/icron-brand/usb-extenders/cat5/usb-2-0-ranger-2204>

ICRON USB RG2304GE-LAN

<http://www.icron.com/products/oem/usb-extenders/lan/usb-2-0-rg2304ge-lan/>

Where to Buy

<http://www.icron.com/where-to-buy/>

Rocket drivers and firmware

You can decode and play RED r3d files using the CPU and GPU or if you install a Red Rocket/Rocket-X in your workstation or expander you will need to manually install the RED Rocket drivers and firmware from the RED website for use with Resolve.

It is important to use the version of the Red Rocket/Rocket-X driver and also firmware that is certified for use with DaVinci Resolve.

Please refer to Readme file that is supplied with each version of Resolve for the specific certified drivers and Rocket firmware that is correct for that version of DaVinci Resolve.

The drivers and firmware are available for download from www.red.com/downloads.

RED Rocket

<http://www.red.com/>

Where to Buy

<http://www.red.com/store/775-0001>

Third party panels

DaVinci Resolve for Mac and Windows supports five third party control panels. Please refer to the instructions from the panel vendor and review with the directions below to configure the panel to work with DaVinci Resolve.

Configuring DaVinci Resolve for third party panels

After first starting the Resolve application, open the Hardware Setup tab by selecting 'Preferences' from the DaVinci Resolve application. In the Hardware settings window, select the Control Panel tab and select the control panel you have connected to your computer. Save the updated preferences and restart the DaVinci Resolve application.

The OxygenTec ProPanel and the Tangent Devices WAVE control panel are USB devices and require no special configuration for use with DaVinci Resolve. Just plug it in to your computer and select in Resolve.

The Tangent Devices Element Bundle is a set of four USB panels that connect to your computer via a 4-port USB 2.0 hub. You will need to download and install the 'Tangent Hub support pack' to use the panels with DaVinci Resolve. Once the Tangent Hub is installed, plug the panels into your computer and select in Resolve. The Tangent Hub installer can be downloaded from <http://www.tangentdevices.co.uk/support.asp>

If using a JLCooper Eclipse CX, follow the Eclipse CX documentation to connect and configure it with an Ethernet port on your computer. Then launch Resolve, use the Preferences to select the Eclipse CX panel and click "Save." If you have changed the IP address or port from the default panel settings, enter the IP address and port number for your panel and then click "Save." Restart the DaVinci Resolve application and you will see the panel menus as soon as the application starts.

The Avid Artist Color panels installation is generally quite straight forward. If your computer is connected to a network with a DHCP server, just connect an Ethernet cable from the panel to the same network switch. Install the EUcontrol application that comes with the panel, or download it from the Avid support site. Launch the application and you will notice the E icon towards the right side of the top menu bar. When the icon is solid, the panel is communicating with the EUcontrol application and, once selected in the DaVinci Resolve preferences, the panel will display Resolve menus at the next restart of the Resolve application. If you are not using a DHCP server, refer to the Avid Artist Color installation instructions for setting the IP address of the panel and computer. It should take just 30 seconds to set.

Third party panel options

Multiple alternative options are shown in no particular order

Avid Artist Color

<http://www.avid.com/products/Artist-Color>

Where to Buy

http://shop.avid.com/ccrz__ProductDetails?sku=AR-EP-ACOL-00

JLCooper's Eclipse CX

http://www.jlcooper.com/_php/product.php?prod=eclipsecxm

Where to Buy

https://jlcooper.com/secure/_php/store.php?view=info&store=retail

OxygenTec ProPanel

http://store.cgangs.com/-/158--oxygen-tec-propanel-mk-ii-.html?search_query=propanel&results=3

Where to Buy

<http://store.cgangs.com/order>

Tangent Devices Element Bundle

http://www.tangentwave.co.uk/products_element.asp

Where to Buy

http://www.tangentwave.co.uk/reseller_list.asp

Tangent Devices WAVE

http://www.tangentwave.co.uk/products_wave.asp

Where to Buy

http://www.tangentwave.co.uk/reseller_list.asp

Windows and Linux systems: PCIe slot configurations

ASUS PCIe Configuration

ASUS X99 Deluxe with single GPU

Slot	Board	Function
1	UI and Image Processing GPU	UI Monitor
1a	Do not use this slot	
2	Do not use this slot	
3	DeckLink Capture Card	Video and Audio Monitoring
4	Do not use this slot	
5	Optional RAID/Storage controller	For External Media Storage

Note: Motherboard slot 1 is closest to the CPU

ASUS X99 Deluxe with PCIe expander for multiple GPUs

Slot	Board	Function
1	UI and Image Processing GPU	UI Monitor
1a	Do not use this slot	
2	Do not use this slot	
3	PCIe Expander HBA	To PCIe Expander
4	Do not use this slot	
5	DeckLink Capture Card	Video and Audio Monitoring

Note: Motherboard slot 1 is closest to the CPU. PCIe Expander options shown below.

HP PCIe Configuration

HP Z840 with single or dual GPU

Slot	Board	Function
1	–	–
2	UI and Image Processing GPU	UI Monitor
3	Optional RAID/Storage controller	For External Media Storage
4	Optional 2nd GPU	Do not connect
5	Blocked	
6	DeckLink Capture card	Video and Audio Monitoring
7	DeckLink HDMI/Mezzanine card	HDMI/Quad SDI Monitoring

Note: Motherboard slot 1 is closest to the CPU. In this configuration a single width UI GPU is required

HP Z840 with PCIe expander for multiple GPUs

Slot	Board	Function
1	–	–
2	UI and Image Processing GPU	UI Monitor
3	Optional RAID/Storage controller	For External Media Storage
4	PCIe Expander HBA	To PCIe Expander
5	Do not use this slot	
6	DeckLink Capture card	Video and Audio Monitoring
7	DeckLink HDMI/Mezzanine card	HDMI/Quad SDI Monitoring

Note: Motherboard slot 1 is closest to the CPU. In this configuration a single width UI GPU is required. PCIe Expander options shown below

Supermicro PCIe Configuration

Supermicro SuperServer 7048GR-TR with single or dual or triple GPUs

Slot	Board	Function
1	–	–
2	UI and Image Processing GPU	UI Monitor
3	–	–
4	Optional 2nd GPU	Do not connect
5	–	–
6	Optional 3rd GPU	Do not connect
7	DeckLink HDMI/Mezzanine card	HDMI/Quad SDI Monitoring
8	DeckLink Capture card	Video and Audio Monitoring
9	–	–
10	Optional RAID/Storage controller	For External Media Storage
11	–	–

Note: Motherboard slot 11 is closest to the CPU. An optional Red Rocket X card should be installed in slot 4

Supermicro SuperServer 7048GR-TR with expander for multiple GPUs

Slot	Board	Function
1	–	–
2	UI and Image Processing GPU	UI Monitor
3	–	–
4	PCIe Expander HBA	To PCIe Expander
5	–	–
6	PCIe Expander HBA	To PCIe Expander
7	DeckLink HDMI/Mezzanine card	HDMI/Quad SDI Monitoring
8	DeckLink Capture card	Video and Audio Monitoring
9	–	–
10	Optional RAID/Storage controller	For External Media Storage
11	–	–

Note: Motherboard slot 11 is closest to the CPU. PCIe Expander options shown below

PCIe Expanders: Slot Configurations

Multiple alternatives shown in no particular order

CUBIX GPU-Xpander Desktop Elite

Computer Connection	Slot	Board
PCIe HBA	1	Image Processing GPU
	2	Image Processing GPU
	3	Image Processing GPU
	4	Image Processing GPU

CUBIX GPU-Xpander Rackmount Elite

Computer Connection	Slot	Board
PCIe HBA	1	Spare x8 Slot
	2	Spare x8 Slot
	3	Image Processing GPU
	4	Image Processing GPU
	5	Image Processing GPU
	6	Image Processing GPU

CUBIX GPU-Xpander Desktop Elite

Computer Connection	Slot	Board
PCIe HBA	1	Image Processing GPU
	2	Image Processing GPU
	3	Image Processing GPU
	4	Image Processing GPU
PCIe HBA	5	Image Processing GPU
	6	Image Processing GPU
	7	Image Processing GPU
	8	Image Processing GPU

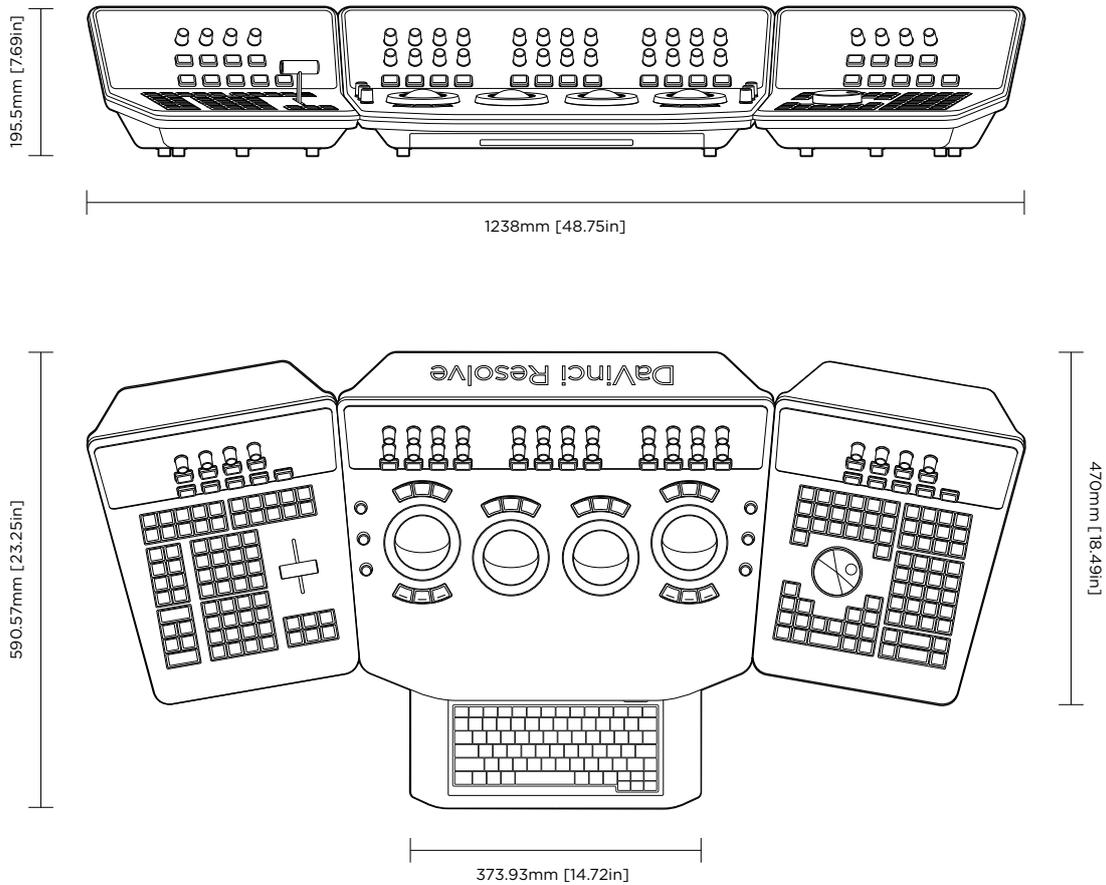
Cyclone PCIe2-2707

Computer Connection	Slot	Board
PCIe HBA	1	Image Processing GPU
	2	Image Processing GPU
	3	Image Processing GPU
	4	Spare x8 Slot
	5	Spare x8 Slot

Panel & Warranty Info

DaVinci Resolve Advanced Panel dimensions and weights

	Height	Width	Depth	Weight
Center Panel	195.5mm (7.69in)	574.1mm (22.60in)	460.7mm (18.14in)	12.2kg (26.9lb)
Left Panel	195.5mm (7.69in)	333.5mm (13.13in)	421.8mm (16.60in)	4.8kg (10.6lb)
Right Panel	195.5mm (7.69in)	333.5mm (13.13in)	421.8mm (16.60in)	4.8kg (10.6lb)



Warranty

12 Months Limited Warranty

Blackmagic Design warrants that DaVinci Resolve control surface will be free from defects in materials and workmanship for a period of 12 months from the date of purchase. If a product proves to be defective during this warranty period, Blackmagic Design, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product. Periodical updates to the operational software are not included under this warranty.

In order to obtain service under this warranty, you the Customer, must notify Blackmagic Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by Blackmagic Design, with shipping charges pre paid. Customer shall be responsible for paying all shipping changes, insurance, duties, taxes, and any other charges for products returned to us for any reason.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Blackmagic Design shall not be obligated to furnish service under this warranty: a) to repair damage resulting from attempts by personnel other than Blackmagic Design representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non Blackmagic Design parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product. THIS WARRANTY IS GIVEN BY BLACKMAGIC DESIGN IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. BLACKMAGIC DESIGN AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BLACKMAGIC DESIGN'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER BLACKMAGIC DESIGN OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. BLACKMAGIC DESIGN IS NOT LIABLE FOR ANY ILLEGAL USE OF EQUIPMENT BY CUSTOMER. BLACKMAGIC IS NOT LIABLE FOR ANY DAMAGES RESULTING FROM USE OF THIS PRODUCT. USER OPERATES THIS PRODUCT AT OWN RISK.

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