



Hardware Selection and Configuration Guide

# DaVinci Resolve 14

August 2017

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

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# Getting Started

## Building a professional non-linear editing, color correction, audio post and finishing system

DaVinci Resolve is the worlds most popular and advanced professional on-set, editing, color correction, audio post production and finishing tool for Mac, 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, audio post or finishing systems all image processing in DaVinci Resolve is graphics processor (GPU) based. Some of the features require a higher end GPU so the better the quality of the GPU, better the performance benefits. To get the extra performance benefits of the GPU this guide will help you select the correct one for your needs.



Whether you are just starting your editing or grading or audio post for film or TV 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.

## 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 consider that each OS has its advantages over the others and sometimes the requirement to render in a particular codec will define your selection.

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.

There are hardware configurations detailed below starting from a single dedicated GPU for image processing up to a eight GPU system suitable for demanding 8K and 4K stereoscopic grading sessions. While performance varies greatly, most modern Intel, AMD and NVIDIA GPUs that support OpenCL 1.2 or CUDA 3.0 compute capability will operate with DaVinci Resolve.

As there are many potential bottle necks within an image processing 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 and DaVinci Resolve Studio for the most part have the same hardware performance needs.



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## 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 DaVinci Resolve uses the GPU for all image processing so 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.

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## DaVinci Resolve control panel 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. Whether it's the Micro or Mini control panel, or the Advanced control panel with the custom backlit keys featuring RGB color and intensity to suit your mood and taste, these panels will dramatically improve your creative throughput and will definitely impress your clients.



As an example, with a single key on the panel you can 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 controls on the panel for contrast, lift, gain, color temperature, tint, highlight and lowlight recovery, saturation, color boost and mid tone detail.

In fact each knob allows super fine parameter adjustment and with a simple push, you can reset 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.

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## 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, 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.



You can also connect the HDMI output from the I/O device to feed a second monitor.

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

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.

To use the Blackmagic Design video I/O devices with DaVinci Resolve, you will need to install the Desktop Video drivers. These are provided along with your I/O device. The latest version of the drivers are available from the support page at [www.blackmagicdesign.com](http://www.blackmagicdesign.com)

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## UI and grading monitors

DaVinci Resolve offers support for a wide variety of UI resolutions in single and also dual 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 resolution. If you do not have a Retina 5K screen the UI layout works 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 so 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. You can use one of the calibration programs with Resolve, or a standalone application, generate a 3D LUT and use it in the monitor 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.

### Mac

DaVinci Resolve for Mac supports a number of internal and external storage systems however almost any storage, designed for Mac and high bandwidth media, will be suitable for use with the Mac 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. 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.

Like Mac and Linux, facilities with Windows systems can use SAN based shared storage via single or dual 16Gbit or 32Gbit 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 8K 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.

There are also a number of other vendors of file systems suitable for Linux. 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.

Once you have the file system installed, SAN based shared storage can be connected via single or dual 16Gbit or 32Gbit Fibre Channel via a FC card in the Resolve workstation.

# Hardware Selection and Setup

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## Time to select your system

The following pages can be used to help select a hardware configuration for a Mac, 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 or online activation
- Capture and playback card
- DaVinci Resolve Control 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
- DaVinci USB Keyboard
- USB tablet and pen
- USB extender
- UI extender
- Database Server for shared and collaborative workflows

## Overview and system selection

The Mac 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 systems so you can select from the options listed, select your Blackmagic Design supplied components and then follow the DaVinci Resolve installation instructions.

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

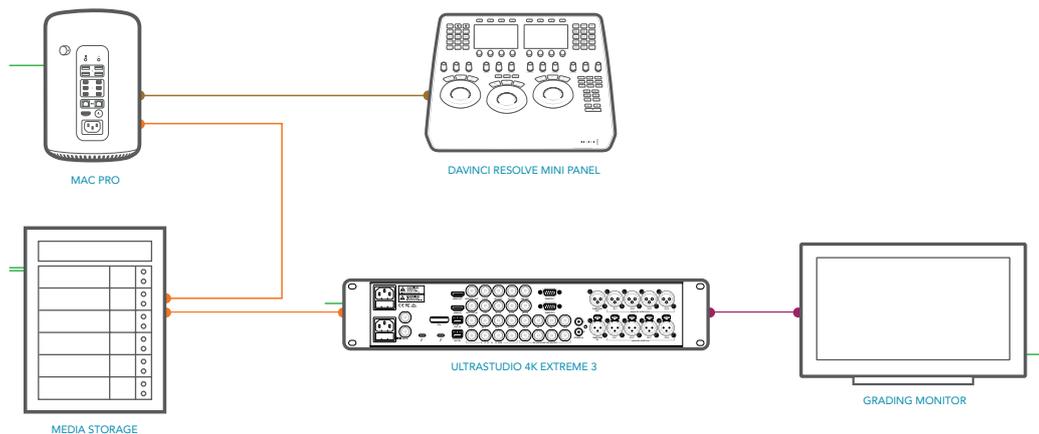
The Mac Pro includes dual AMD GPUs and both of these are used for image processing, even for the free version of DaVinci Resolve. After extensive testing we recommend the D700 GPU model. The D500 GPU model offers limited performance in comparison to the D700 and may also exhaust the GPU ram with clips 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.

### Mac Pro configuration

- Thunderbolt
- USB
- HD-SDI
- Electrical Power



## iMac

The 27" Retina 5K iMac with 8GB 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.

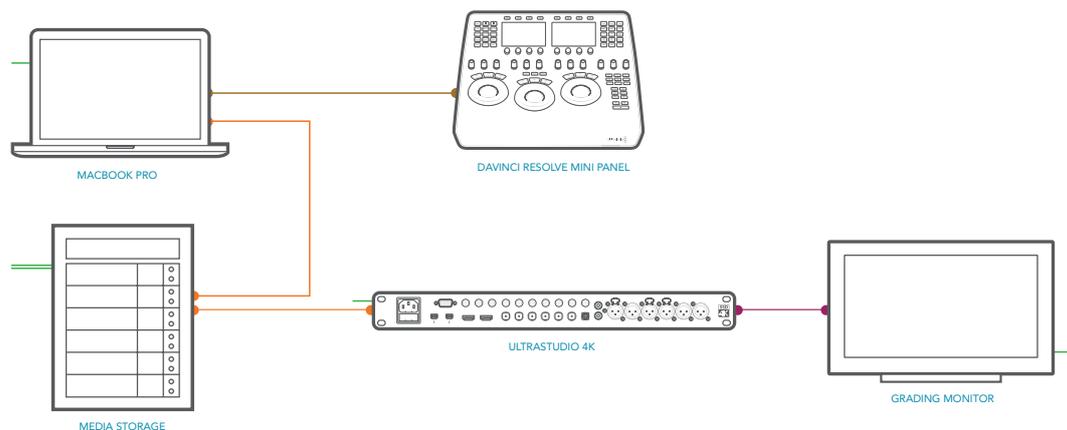


UHD timelines are practical with some performance limitations especially when using optical flow speed changes, temporal processing and noise reduction.

The 27" Retina 5K iMac with 4GB 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.

### iMac and MacBook Pro configuration

- Thunderbolt
- USB
- HD-SDI
- Electrical Power



## 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" MacBook Pro can be configured with a Radeon Pro 560 GPU option with 4GB of memory.



## MacBook

The mid 2017 MacBook in the highest performance configuration, with just 8GB of system RAM and an Intel HD Graphics 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 suitable for use as a central database server for full license Resolve users that wish to share projects with a few 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.

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## NVIDIA and CUDA drivers for Mac

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

Systems using NVIDIA GPUs and also not using 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, while not officially certified you can download and try 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 to 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](http://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.

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## 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.

### Blackmagic Design website version

Using the installer that was downloaded from the Blackmagic Design website, 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 you will need to activate your license online or use a USB dongle which 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](http://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.

### Important steps for first use

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

- 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.
- 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.

- 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.

- 4 In the Control Panels tab choose which color grading control panel hardware you have connected to your system. DaVinci Resolve supports the current DaVinci Resolve control panels 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.

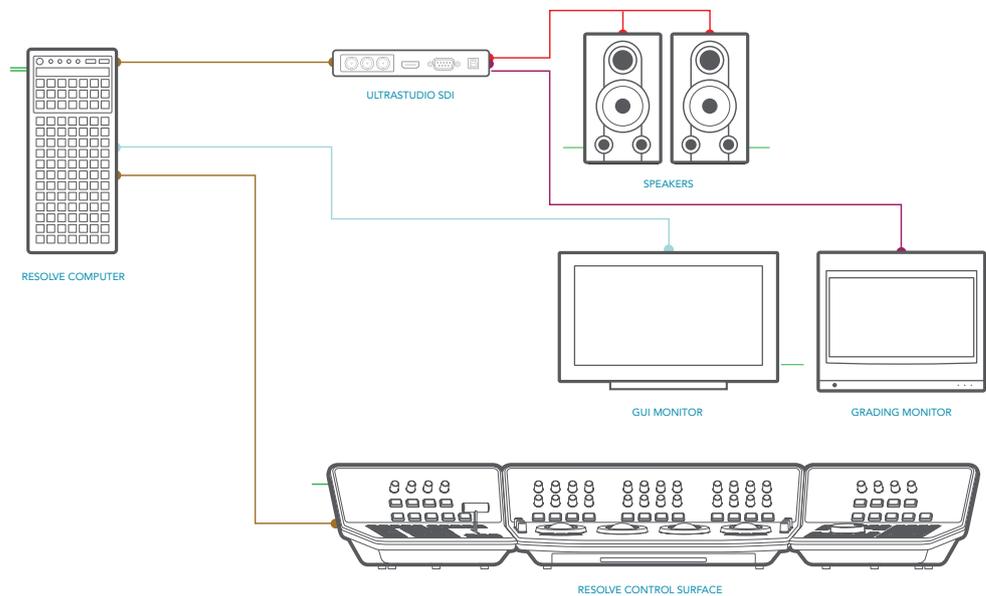
- 5 After changing any of these preferences select save and restart the DaVinci Resolve application.

## Overview and system selection

The Microsoft Windows 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.

### Standard configuration

- DVI
- USB
- HD-SDI
- Audio
- Electrical Power



However in every case there are special performance and hardware configurations for the Microsoft Windows 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 10 Creators Edition. Legacy support exists for Windows 8.1 Pro.

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.

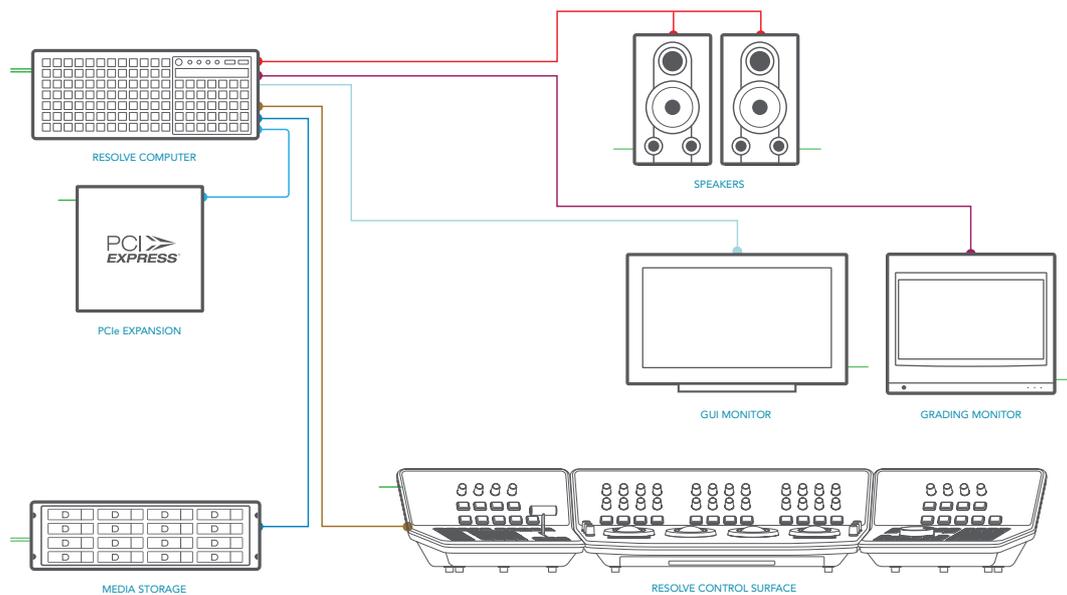
For all systems using an expander, we generally recommend that you install a single UI GPU in your computer and have all image processing GPUs in the expander. While this guide refers to configs with up to three GPUs, there are now third party systems available with more image processing GPUs and for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

You will also find below a list of suppliers who can offer turnkey systems.

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. A number of GPU options are listed below, as are options for media storage, file system and accessories.

### Advanced configuration

- DVI
- USB
- HD-SDI
- PCI-E Extender
- Storage Connection
- Audio
- Electrical Power



### Generic PCs

If you 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.

It is also very important that you install the latest USB 3.0 software drivers and firmware for your motherboard. 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.

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## HP Z840

The HP Z840 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..

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## 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.

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## PC Laptops

In the last year or two there have been an increasing number of systems with the new GPUs that are suitable for use with DaVinci Resolve. So while performance varies greatly, most modern AMD, Intel and NVIDIA GPUs that support OpenCL 1.2 or CUDA 3.0 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 and the HP Book are examples of a laptop for Resolve field use.

## Windows hardware, BIOS and 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.

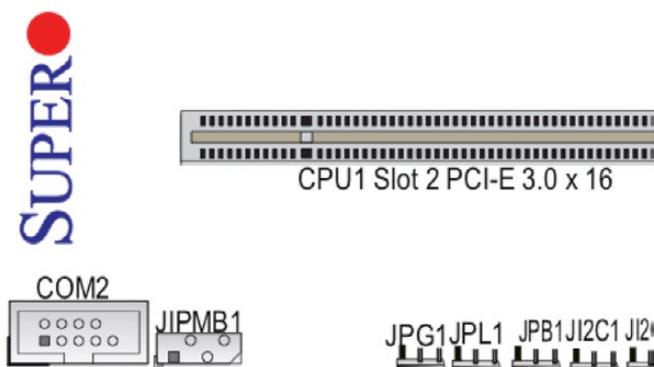
While there are too many variables to list for all motherboards the information provided here for the Supermicro SuperServer may offer the advise you need to configure your system before installing the Windows (or Linux) OS.

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

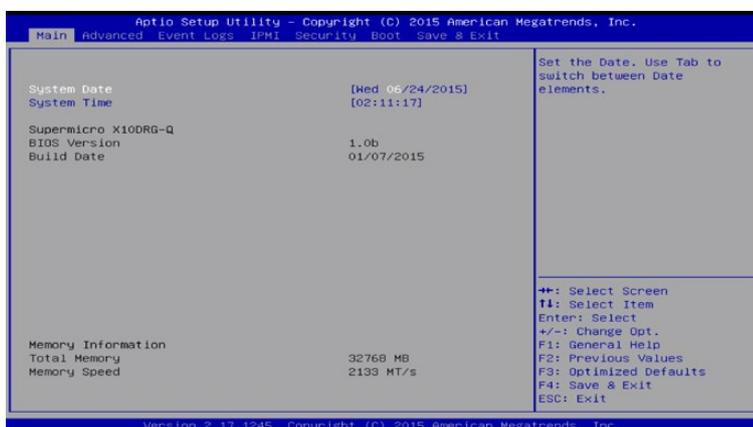
## Supermicro X10DRG-Q Motherboard jumpers and BIOS

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

- 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.
- 2 Remove the jumper from pins 1 and 2 and install it over pins 2 and 3



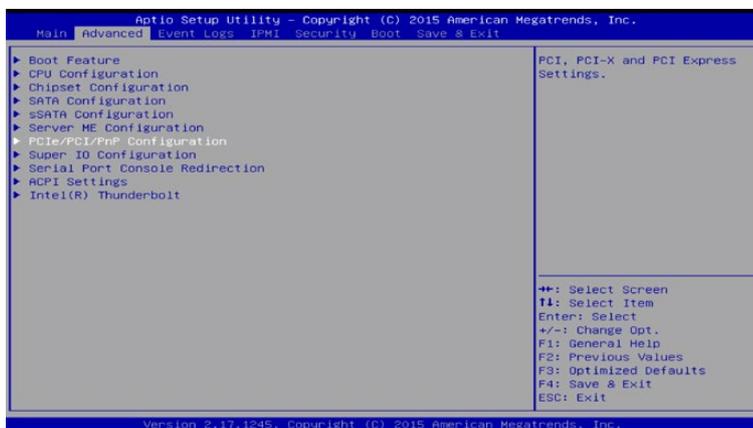
- 3 Unplug all hard disks except the one where you want to install the OS and Resolve.
- 4 Power up the machine. Press 'Delete' when the Supermicro logo appears on the screen in order to go into BIOS.
- 5 You will see the main BIOS page shown below. Set the date and time correctly for each server.



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



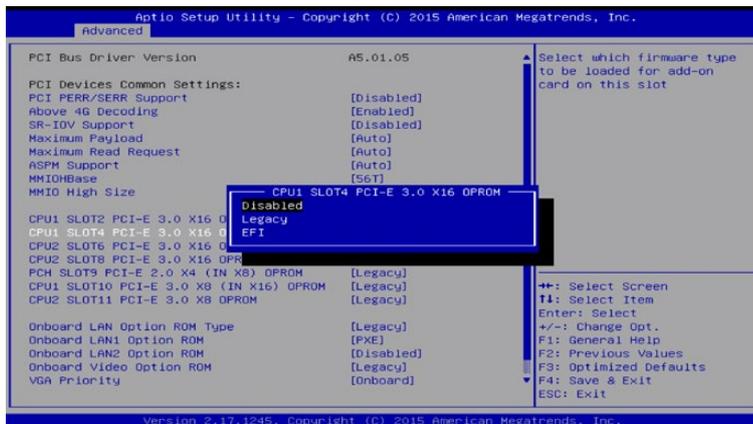
- 7 Now arrow down to select the PCIe/PCI/PNP Configuration page and hit 'Enter'.



- 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 slot 2 for the UI GPU and step to slot 4.



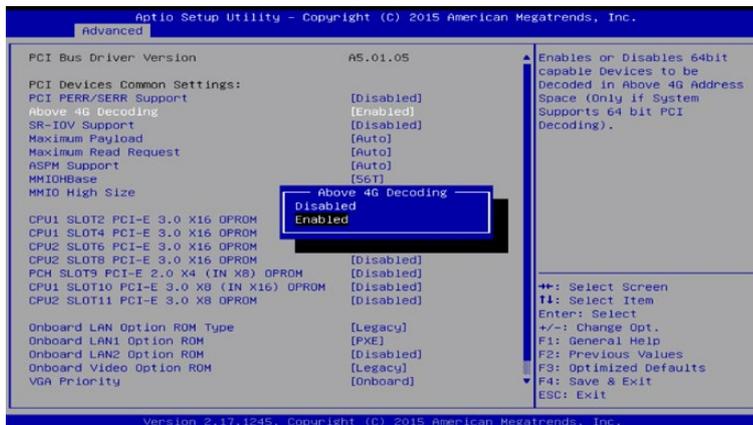
- 9 With the slot 4 line selected hit 'Enter' and then using the arrows or +/- keys select disable and then 'Enter' to go back to the list.



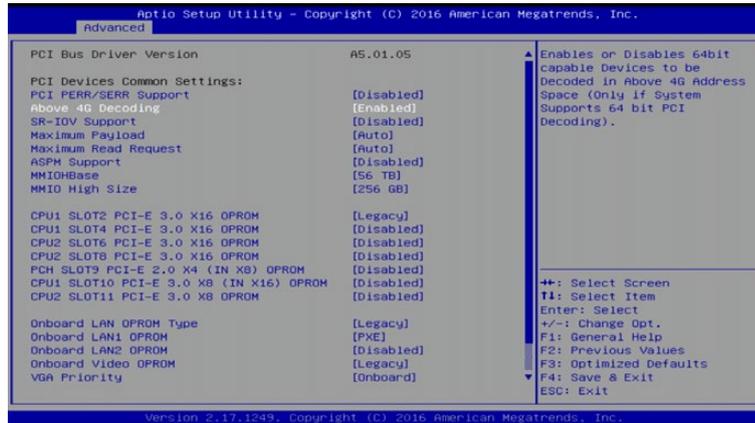
- 10 Repeat step 8 and 9 for the other PCI-E slots. They all should be disabled with the exception of the UI slot 2.
- 11 Then up arrow to select the item 'Above 4G Decoding' and hit 'Enter'.



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



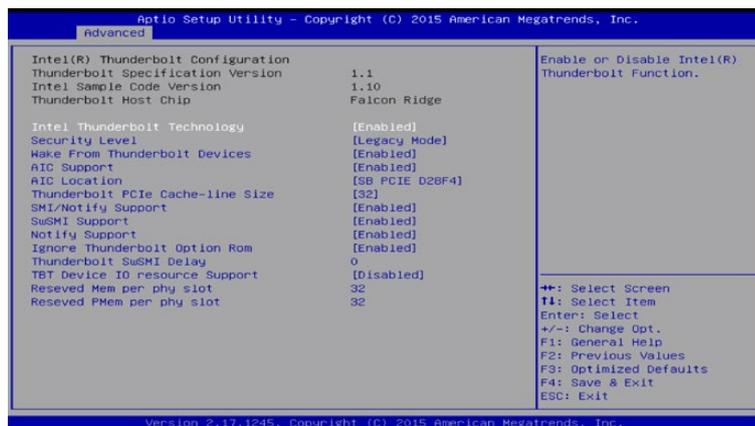
- 13 Double check your configuration is as per below and then select 'Esc' to move up one screen.



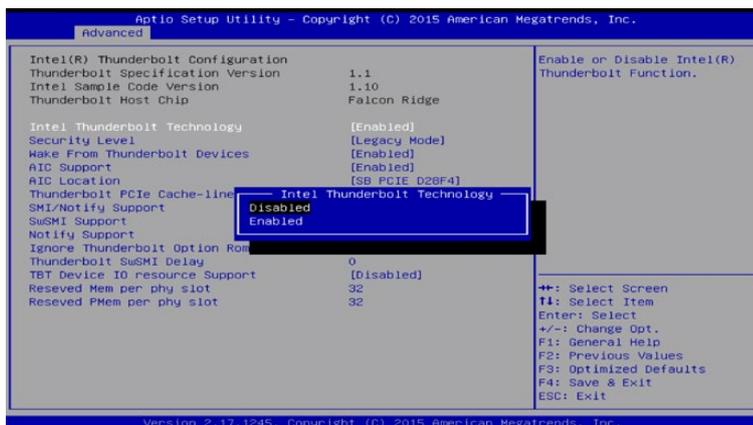
- 14 Your now back at the screen we had in step 7. Arrow down and select 'Intel Thunderbolt'.



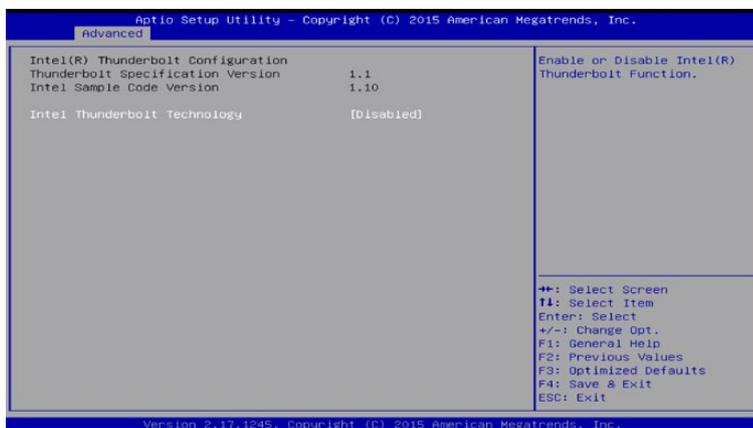
- 15 Then arrow down to 'Intel Thunderbolt Technology'.



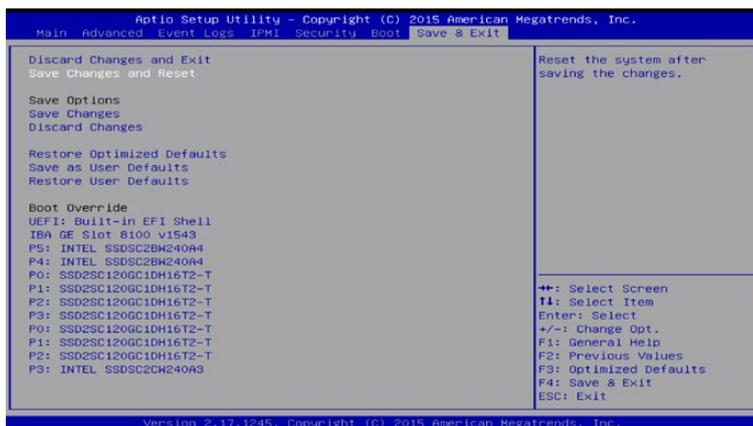
- 16 'Enter' then select 'Disabled' and 'Enter' again to complete this step.



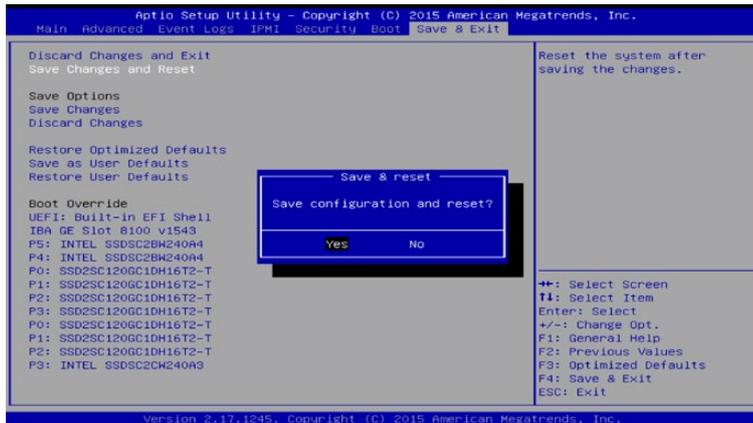
- 17 After disabling you should see this screen below. Then select 'Esc' to move up a menu.



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



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

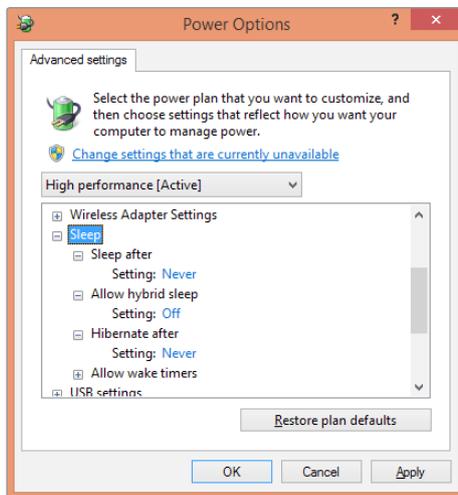


This completes the jumper and bios setup and will reboot the computer.

## 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.

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



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

## AMD, 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. Please note that systems running both NVIDIA and AMD hardware simultaneously is not supported on DaVinci Resolve for Windows systems.

### 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

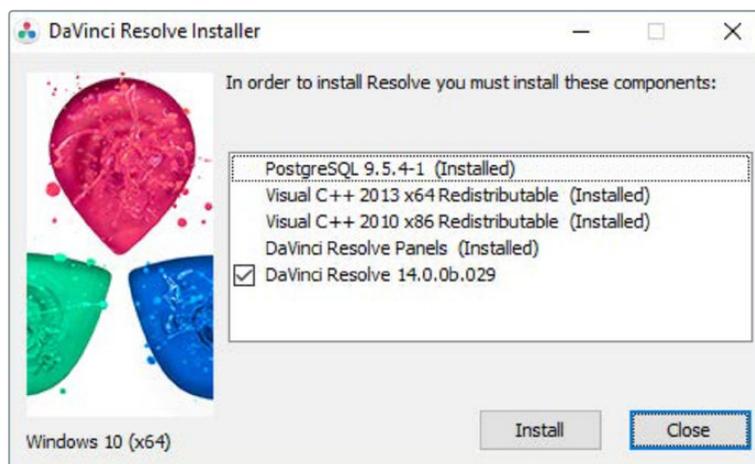
AMD provides a driver installer that you can use to automatically install and configure the appropriate drivers for your AMD GPU. You can download this installer from <http://support.amd.com/en-us/download>.

## 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 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, you will need to activate your license online or use a USB dongle which 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](http://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.

- 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.

- 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.

- 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.

- 4 In the Control Panels tab choose which color grading control panel hardware you have connected to your system. DaVinci Resolve supports the range of DaVinci Resolve control panels but can also be used with third party panels from Avid, JLC Cooper, 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.

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

## Overview and system selection

We recommend Mac or Windows systems for their ease of configuration and use, their simple file 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 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.

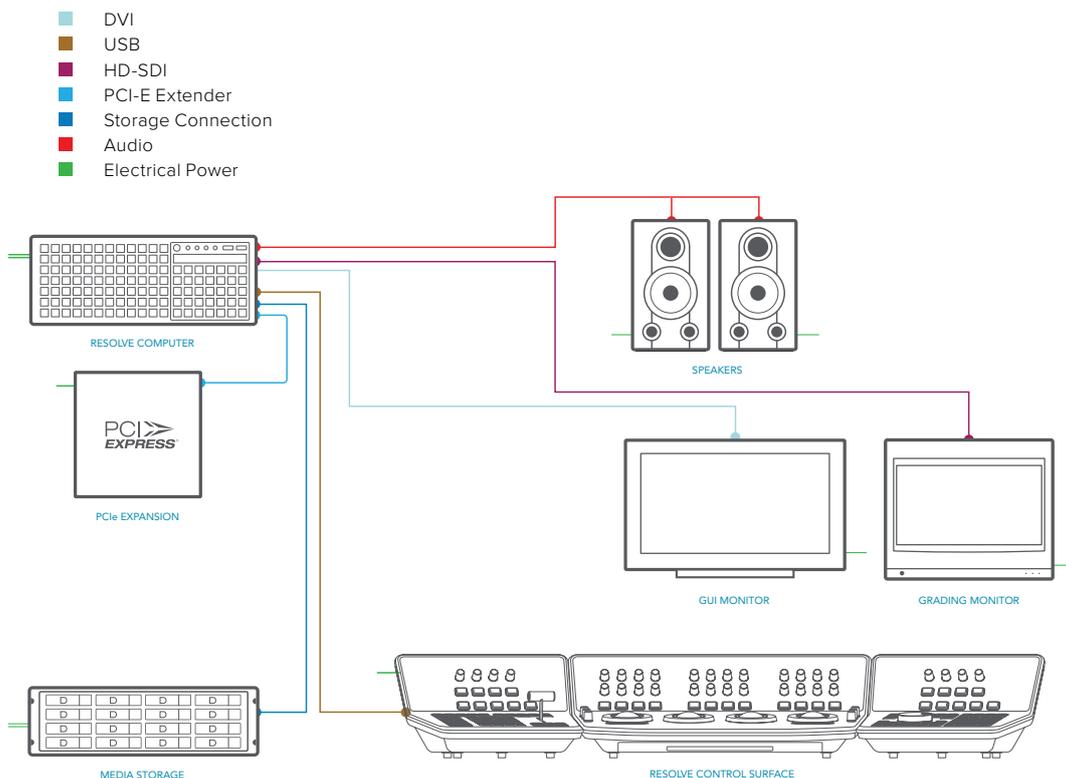
There are hardware configurations detailed below starting from a single dedicated GPU for image processing up to eight GPUs in one system and when configured with the more powerful GPUs this system is suitable for stereoscopic grading and 8K video.

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 and NVIDIA in the one system. We recommend using the same model GPU if multiples are used. A number of GPU options are listed below, as are options for media storage, file system and accessories.

### Typical configuration



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## 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.



For the recommended Supermicro systems, check the jumper configuration and BIOS as indicated in the Windows section above called “Windows hardware, BIOS & OS configuration”.

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## HP Z840

A number of DaVinci Resolve facilities as it provides a 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.

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## Installing Linux

You can install DaVinci Resolve and DaVinci Resolve Studio for Linux on your own system that has CentOS or RHEL 6.8 and 7.3.

DaVinci Resolve for Linux and DaVinci Resolve Studio for Linux are available from the Blackmagic Design support web site. <https://www.blackmagicdesign.com/support/family/davinci-resolve-and-fusion>.

### **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. We have not fully tested StorNext 6.x but to date all tests are ok.

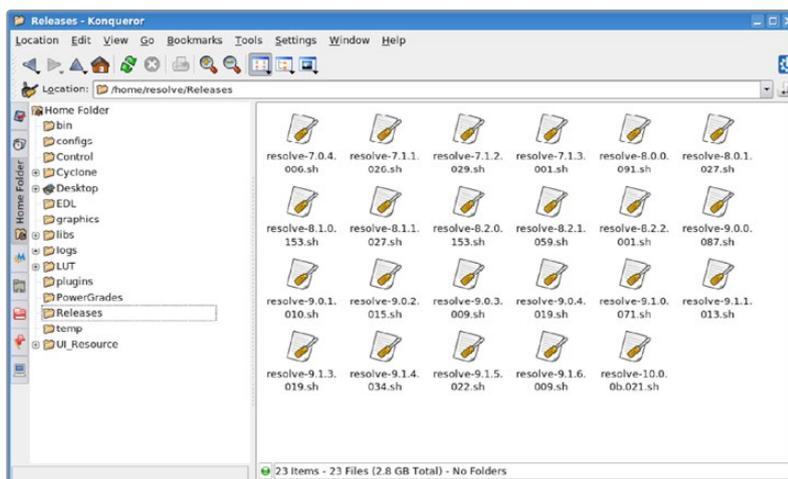
In a DAS configuration, Resolve hosts the server and client for StorNext. Your StorNext installer or IT engineer can open a shell and run the StorNext installation following the guidelines set by Quantum. You will also need to enter the StorNext license that is obtained from Quantum.

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.

## 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.



Installation instructions for DaVinci Resolve and DaVinci Resolve Studio software (for the legacy Resolve DVD environment, skip to the next section)

- 1 Download DaVinci\_Resolve\_Studio\_14.x\_Linux.zip (if you have a DaVinci Resolve license dongle) or DaVinci\_Resolve\_14.x\_Linux.zip from the Blackmagic Design website.
- 2 Open a Terminal shell
- 3 You need to now become the root user. Type:
 

```
su -
```

 When prompted, please enter your 'root' user's password.
- 4 Navigate to the folder where you downloaded the DaVinci Resolve software. Type:
 

```
cd /path/to/downloaded/software/location
```

- 5 Unzip the downloaded file. Type:  

```
unzip DaVinci_Resolve_Studio_14.x_Linux.zip
```

or  

```
unzip DaVinci_Resolve_14.x_Linux.zip
```
- 6 Run the DaVinci Resolve or DaVinci Resolve Studio installer  

```
sh DaVinci_Resolve_Studio_14.x_Linux.sh
```

or  

```
sh DaVinci_Resolve_14.0b4_Linux.sh
```

On legacy DaVinci Resolve Linux installations with the DVD environment, Resolve can be installed by following the instructions provided below.

- 1 Download *DaVinci\_Resolve\_Studio\_14.x\_Linux.zip* file.
- 2 Double click the zip file to open it and drag *DaVinci\_Resolve\_Studio\_14.x\_Linux.sh* to the */home/resolve/Releases/* folder
- 3 Double-click the installer to install the release from the File Browser

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](http://www.blackmagicdesign.com).



### Final setup checks

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

# Shopping Guide

## Mac systems

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### Blackmagic Design items for Mac

#### **DaVinci Resolve Studio for Mac Application**

<http://www.blackmagicdesign.com>

#### **DaVinci Resolve Control Panels**

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

#### **Blackmagic Design Capture and Playback Card**

- UltraStudio 4K Extreme 3
- UltraStudio 4K

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

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 Express
- Mini Monitor
- Mini Recorder

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

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## 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/>

#### *Alternatives with a different feature set*

#### **Apple iMac with Retina Display**

Mid 2017 27" Retina 5K model, quad-core i7

4.2GHz Intel Core i7 processor

32GB system RAM recommended

1TB Internal SSD storage  
Radeon Pro 580 with 8GB of VRAM  
<http://www.apple.com/imac>

#### **Apple MacBook Pro with Retina Display**

Mid 2017 15" model, quad-core i7  
3.1GHz Intel Core i7 processor  
16GB system RAM  
512GB PCIe-based SSD  
Radeon Pro 560 with 4GB VRAM  
<http://www.apple.com/macbook-pro>

#### **Apple MacBook Pro with Retina Display**

End 2016 15" model, quad-core i7  
2.6GHz Intel Core i7 processor  
16GB system RAM recommended  
512GB PCIe internal flash storage  
Radeon 450 with 2GB VRAM  
<http://www.apple.com/macbook-pro>

#### **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>

#### **Apple MacBook**

Limited performance for more than HD ProRes  
Mid 2017 12", dual-core i5  
1.3GHz Intel Core i5 processor  
8GB system RAM  
512GB PCIe internal SSD storage  
Intel HD Graphics 615  
<http://www.apple.com/macbook/>

#### **Apple Mac Mini**

Optional Central Database Server  
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/>

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## UI monitor options

### Apple

LG Ultrafine 27" 5K Display

<http://www.apple.com>

### Dell

Dell UltraSharp 27" Ultra HD 5K monitor

<http://www.dell.com/ae/business/p/dell-up2715k-monitor/pd>

## Windows systems

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### Blackmagic Design items for Windows

#### DaVinci Resolve Studio for Windows application

<http://www.blackmagicdesign.com>

#### DaVinci Resolve Control Panels

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

#### Blackmagic Design Capture and Playback Card

DeckLink 4K Extreme 12G

with optional DeckLink 4K Extreme 12G - Quad SDI

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

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 12G
- DeckLink Studio 4K
- Mini Monitor
- Mini Recorder

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

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## Microsoft Windows

### Microsoft Windows 10 Professional – Creators update

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

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## 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/>

### **Generic Chassis**

Generic ATX chassis such as Cooler Master HAF 932 Advanced

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

### **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>

### **Other Components**

512GB SSD or SATA 7200 1TB system hard drive

DVD-RW drive, SATA, Black

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## 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>

### **Supermicro SuperServer 7048GR-TR**

Black 4RU Rackmountable/Tower

Dual Intel Xeon E5-2698 v4 (dual 20 core; dual 12 core is minimum recommended)

32GB (8x4GB memory sticks) or more ECC DDR4-2400 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>

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## Laptops

### **Dell Precision 7720**

Intel Core™ i5 or i7 processors

32GB minimum system RAM

NVIDIA Quadro P4000; 8GB GDDR5 GPU

512GB SSD minimum system hard drive

<http://www.dell.com/en-us/work/shop/productdetails/precision-17-7720-laptop>

### **HP ZBook 17 G4 Customised Mobile**

Workstation

intel Core i7 processor

16GB minimum system RAM

Quadro P5000 with Dreamcolor display

1TB System drive

<http://store.hp.com/us/en/ConfigureView?catalogId=10051&urlLangId=&langId=-1&storeId=10151&catEntryId=1661652&quantity=1>

## Linux systems

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### Blackmagic Design items for Linux

#### **DaVinci Resolve Studio for Linux Application**

<http://www.blackmagicdesign.com>

#### **DaVinci Resolve Control Panels**

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

#### **Blackmagic Design Capture and Playback Card**

DeckLink 4K Extreme 12G

with optional DeckLink 4K Extreme 12G - Quad SDI

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

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
- Mini Monitor
- Mini Recorder

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

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## Linux workstations

### **Supermicro SuperServer 7048GR-TR**

Black 4RU Rackmountable/Tower

Dual Intel Xeon E5-2698 v4 (dual 20 core; dual 12 core is minimum recommended)

32GB (8x4GB memory sticks) or more ECC DDR4-2400 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>

### *Alternative with a different feature set*

### **HP Z840**

Dual Intel Xeon E5-2697 v3 (dual 14 core) (Dual 12 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>

## Media storage

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### 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>

#### **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>

#### **CalDigit T4 RAID**

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

#### **CalDigit T3 RAID**

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

**Accusys A12T3-Share**

<http://www.accusys.com.tw/T-Share/>

**Accusys A16T2-Share**

<http://www.accusys.com.tw/T-Share/>

**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/>

**OWC Thunderbay 4 Mini**

<https://www.owcdigital.com/products/thunderbay-4-mini>

**OWC Thunderbay 4**

<https://www.owcdigital.com/products/thunderbay-4>

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**PCIe attached storage***Multiple alternative options shown***Accusys A08S4-PS, 8 Bay RAID**

<http://www.accusys.com.tw/ExaSAN/A08S4-PS/>

**Accusys A16S3-PS, 16 Bay RAID**

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

**Accusys SWF16, PCIe Switch**

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

**Facilis Technology TerraBlock**

<http://www.facilis.com/shared-storage-products/>

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**Ethernet attached storage***Multiple alternative options shown***EditShare XStream EFS Scale-out Storage**

<http://www.editshare.com/products/xstream-efs>

**Ardis Technologies DynamicDrivePool (DDP)**

<http://www.dynamicdrivepool.com>

**Isilon Scale-out NAS**

<https://www.emc.com/en-us/storage/isilon/index.htm>

**Archion Omni**

<https://www.archion.com/products/editstor-omni>

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## Storage file system

### **Quantum StorNext 6.x**

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

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## 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>

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## Fibre channel attached storage

### *Multiple alternative options shown*

#### **Dot Hill**

Assured SAN 4000

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

#### **Scale Logic Genesis**

Unlimited SAN Appliance

<http://www.scalelogicinc.com/html/genesis-unlimited-san-appliance.php>

#### **Scale Logic also offer OS agnostic SAN file system.**

Please contact them for details.

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

#### **Facilis Technology TerraBlock**

<http://www.facilis.com/shared-storage-products/>

#### **Quantum Scale-out Storage**

<http://www.quantum.com/products/scale-out-storage/index.aspx>

## 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.

When selecting GPUs, they all need to be from the same supplier, either NVIDIA or AMD. For multiple GPU configurations, you should use the same model GPU for all processing GPUs.

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## NVIDIA options

*Multiple alternative options are shown in no particular order*

### **NVIDIA Quadro GP100**

16GB HBM2 RAM

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

### **NVIDIA Quadro P6000**

24GB GDDR5 SDRAM

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

### **NVIDIA Quadro P5000**

16GB GDDR5 SDRAM

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

### **NVIDIA TITAN Xp**

12GB GDDR5X SDRAM

<https://www.nvidia.com/en-us/geforce/products/10series/titan-xp/>

### **NVIDIA TITAN X**

12GB GDDR5 SDRAM

<https://www.nvidia.com/en-us/geforce/products/10series/titan-x-pascal/>

### **NVIDIA GeForce GTX 1080ti**

11GB GDDR5 SDRAM

<https://www.nvidia.com/en-us/geforce/products/10series/geforce-gtx-1080-ti/>

### **NVIDIA GeForce GTX 1080**

8GB GDDR5 SDRAM

<https://www.nvidia.com/en-us/geforce/products/10series/geforce-gtx-1080/>

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## AMD GPUs

### **AMD Firepro W9100**

16GB GDDR5 SDRAM

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

### **AMD Radeon Pro Duo**

2x16GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/desktop/radeon-pro-duo>

**AMD Radeon Pro WX 7100**

16GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/workstation/firepro-3d/wx7100>**AMD R9 Series 295X**

8GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/desktop/r9>**AMD R9 Series 390**

6GB GDDR5 SDRAM

<http://www.amd.com/en-us/products/graphics/desktop/r9>**AMD RX580**

2-8GB GDDR5 SDRAM

<http://www.amd.com/en/products/graphics/radeon-rx-580>

## 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.

The new Thunderbolt 3 expanders can be used for GPU, 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.

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### 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>

**Cyclone PCIe2-2707 (five slot)**

[www.cyclone.com/products/expansion\\_systems/600-2707.php](http://www.cyclone.com/products/expansion_systems/600-2707.php)

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## Thunderbolt expanders

*Multiple alternative options are shown in no particular order*

**Sonnet eGFX Breakaway Box**

Thunderbolt 3 to eGPU PCIe Expansion

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

**Magma ExpressBox 3T**

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

**Magma ExpressBox 1T**

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

## Accessories

**Logic keyboard Apple DaVinci Resolve**

Model: LKBU-RESOLVE-AM89-US

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

**EditorsKeys Backlite Keyboard**

<http://www.editorskeys.com/davinci-resolve-backlit-keyboard/>

**Optional USB 2.0 Extender**

Model: ICRON USB 2.0 Ranger 2204

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

Model: ICRON USB RG2304GE-LAN

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

## 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.

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### 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.

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## Third party panel options

*Multiple alternative options are shown in no particular order*

### **Avid Artist Color**

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

### **JLCooper's Eclipse CX**

[http://www.jlcooper.com/\\_php/product.php?prod=eclipsecxm](http://www.jlcooper.com/_php/product.php?prod=eclipsecxm)

### **OxygenTec ProPanel**

<http://www.cgangs.com/oxygen-tool/propanel/>

### **Tangent Devices Element Bundle**

<http://www.tangentwave.co.uk/product/element/>

### **Tangent Devices WAVE**

<http://www.tangentwave.co.uk/product/wave/>

### **Tangent Devices Ripple**

<http://www.tangentwave.co.uk/product/ripple/>

# 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 rriple 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 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 Rackmount 8

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

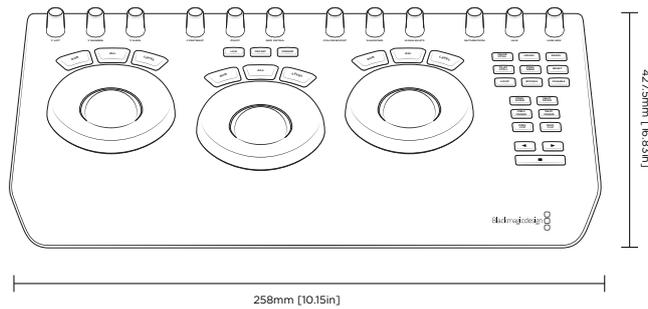
### Cyclone PCIe2-2707

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 Information

## Davinci Resolve Micro Panel dimensions and weights

	Height	Width	Length	Weight
Micro Panel	75mm (2.95in)	427.5mm (16.83in)	258mm (10.15in)	3.5kg (7.71lb)

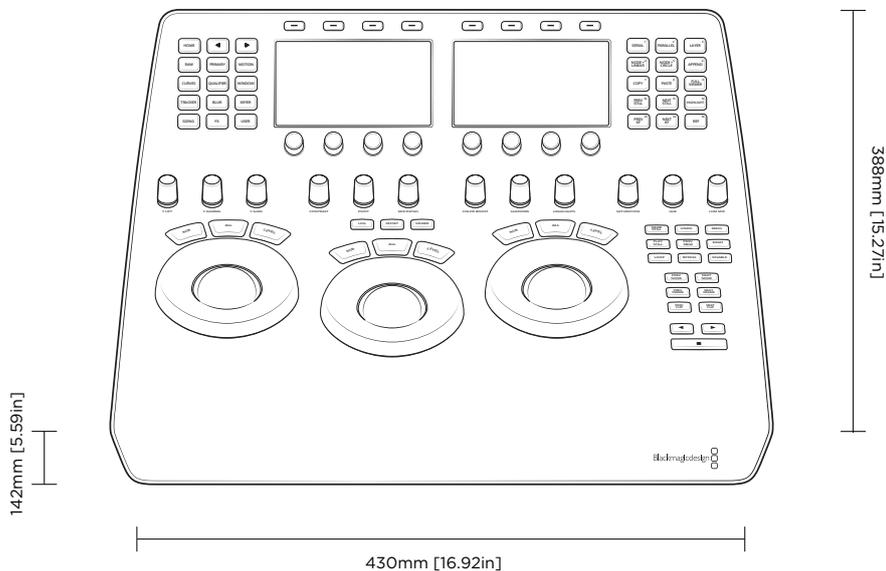


## Davinci Resolve Mini Panel dimensions and weights

	Height	Width	Length	Weight
Overall Mini Panel	142mm (5.59in)	430mm (16.92in)	388mm (15.27in)	6.4kg (14.1lb)

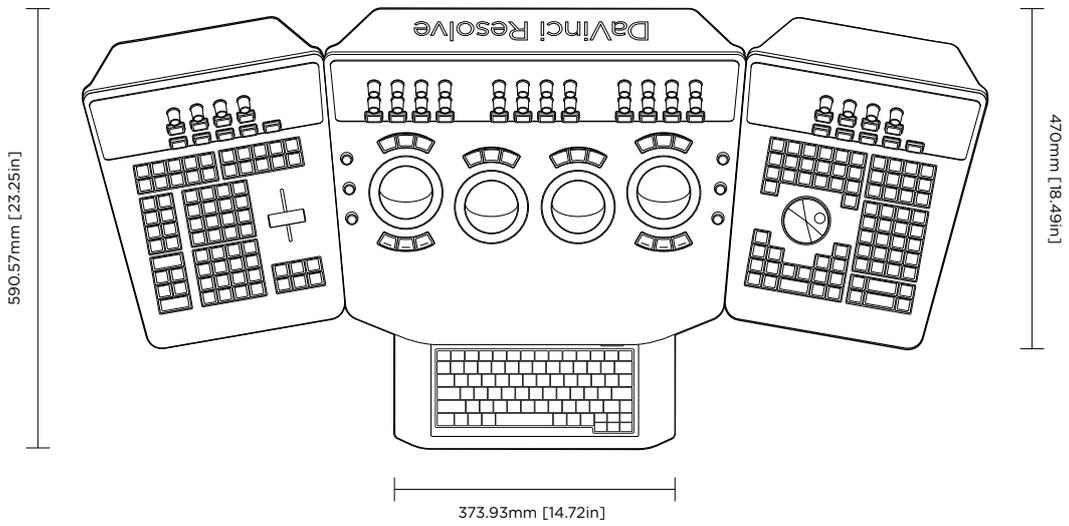
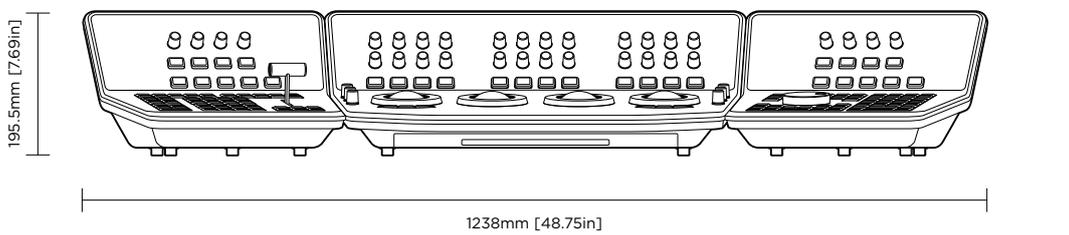
## Davinci Resolve Mini Panel mounting dimensions

	Centre to centre	Driver	Thread
Mounting Dimensions	248mm (9.76in)	3mm Hex Head (0.11in)	14"-20



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)



## Regulatory Notices

### Disposal of waste of electrical and electronic equipment within the European Union.



The symbol on the product indicates that this equipment must not be disposed of with other waste materials. In order to dispose of your waste equipment, it must be handed over to a designated collection point for recycling. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Operation is subject to the following two conditions:

- 1 This device may not cause harmful interference.
- 2 This device must accept any interference received, including interference that may cause undesired operation.

When the PoE is used to supply power, the Ethernet network connection must use screened Ethernet cables.

## Safety Information

This equipment must be connected to a mains socket outlet with a protective earth connection.

To reduce the risk of electric shock, do not expose this equipment to dripping or splashing.

This equipment is suitable for use in tropical locations with an ambient temperature of up to 40°C.

Ensure that adequate ventilation is provided around the product and is not restricted.

No operator serviceable parts inside. Refer servicing to your local Blackmagic Design service centre.



Use only at altitudes not more than 2000m above sea level.

## 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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