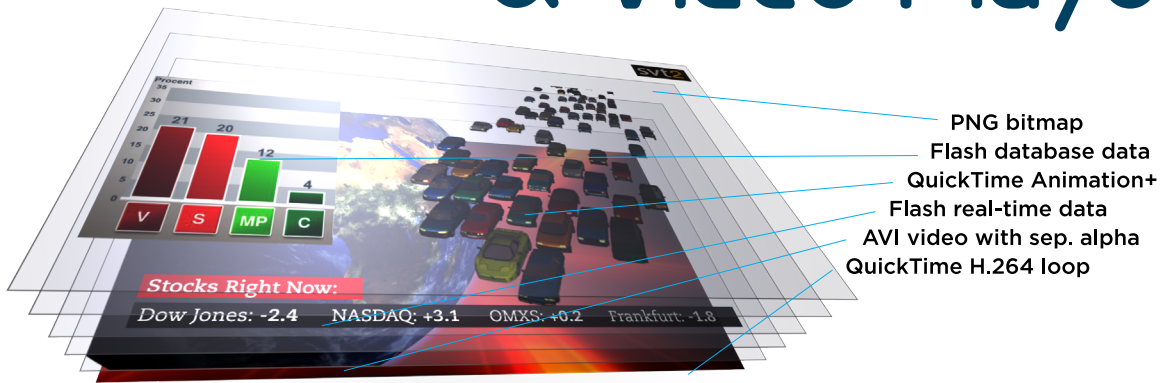# CasparCG 2.0

FREE & OPEN SOURCE

- Plays simultaneous layers of dynamic graphics, videos and images in real-time for all broadcast, show, event and signage needs.

- Supports multiple inputs and outputs of both SD and HD to HD-SDI, HDMI and/or computer screens with key/alpha, including SDI-embedded audio.

- Comprehensive protocol allows for automated operation or manual control from any platform.

- Wide codec support including ProRes, DNxHD and DVCPROHD for both playback and rendering to disk.

- High performance with asynchronous and multi-threaded I/O, paired with GPU-accelerated real-time image adjustments + compositing with blend modes.

Pro Broadcast Graphics & Video Playout

PNG bitmap
Flash database data
QuickTime Animation+
Flash real-time data
AVI video with sep. alpha
QuickTime H.264 loop

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Supports all video standards

CasparCG Server 2.0 plays all the current broadcast formats in both SD and HD, and outputs them to one or several video cards and/or screens simultaneously. Choose between NTSC or PAL; progressive, upper-field or lower-field interlacing.

When outputting to computer screens, you can even define your own resolution and frame rate!

Plays all common formats

No matter if you are using *ProRes*, *DNxHD*, *MPEG-2*, *H.264* or any other common QuickTime or AVI codec such as *DVCPROHD* or *FLV*, your video can be played by CasparCG Server. With support for an embedded alpha channel and high-quality audio, you can play one or multiple simultaneous videos at full quality. Since you can generate an alpha channel from any media type, it's easier than ever to output good looking HD without having to use codecs that large files.
The image codec support is just as wide, letting you play anything from PNG and JPEG to TIFF and PNG.

High performance and acceleration

Need to play a lot of big videos? Simultaneously? *No problem!* A single computer running CasparCG Server can play out more than five simultaneous 1080p50 videos to one or several HD-SDI outputs, including alpha and uncompressed audio!

By using your graphics card, many functions such as compositing, transparency, scaling and image adjustments can be done in real-time.
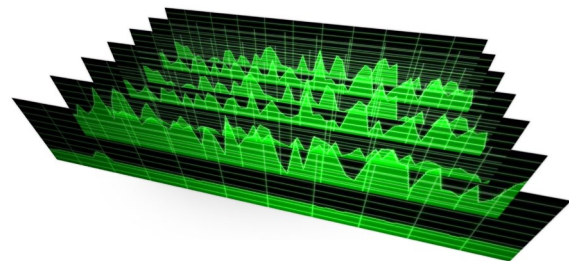
Stack multiple media and re-order them on the fly

No matter what combination of videos, Flash files and images you are using, all the media you play out with CasparCG Server are stacked and composited in real-time, using the embedded alpha channels. Choose your stacking order freely, the software can even reorder media while it's playing, and you mix the layers using Blend Modes such as *Add*, *Screen* and *Multiply*.

Multiple outputs from one server

While CasparCG Server is a software-only solution, you can add pro video cards if you need broadcast SDI output. The software supports multiple cards in the same machine, no matter if you use cards from *BlackMagic Design* or *Bluefish Technologies*. You can even use cards that have multiple channels, letting you use smaller cases that are easier to fit in a small rack.
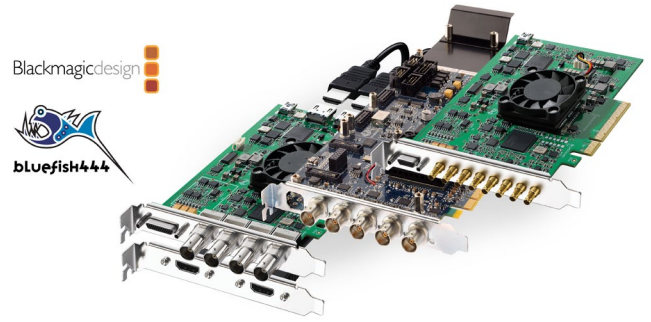
Output to computer screens

Play out to multiple computer screens or projectors without any additional hardware – choose if you want your content scaled (GPU-accelerated) to fit the screen or displayed at the native resolution. If you have several screens attached you can either choose to mirror them or use each as a separate output. Interlaced media is automatically de-interlaced before it is rendered to progressive screens, for maximum image quality.

Render graphics and video to disk

While CasparCG Server was designed for real-time playback, the new Disk Consumer will let you render your output to any of the supported video codecs, such as *ProRes* and *DNxHD*. Great for transcoding, or for adding subtitling or logos. Or why not use for an automatic lower-third-generator that spits out animated graphics for your NLE editors?

Overlay your graphics and videos over live video input

Video and audio input into a *DeckLink* video card can be used just like any other media. For example; use it as one of several layers (each of which can be transformed with the **Mixer** feature) or just overlay other media such as video and graphics on top and then output it.

You can even cut a hole in the input video with another video, a *Flash* template or an image!

Generate alpha channel from a separate file of any type

Use the embedded alpha channel of videos, *Flash* templates and images, or create the alpha channel with a separate file. You can cut a hole in a video file with an animated *Flash* template, or even an animated image!

HD video codecs that are alpha-capable tend to generate very big files. CasparCG Server instead lets you use two small files with an alpha-free codec such as *H.264*; one for fill and one for alpha!

Great audio options including SDI embedding

Both the *Bluefish* and *DeckLink* video cards can now embed audio in your SD/HD-SDI output. Many *DeckLink* cards also output audio in via the *HDMI* and *AES/EBU* connectors. Audio is automatically conformed to correct sample and bit rate in real-time, making most audio transcoding unnecessary.

Monitor real-time performance

With the new **Diagnostics** window you can see a graphical break-down of how long each step in the process of outputting a frame takes. This helps you optimize performance and trouble-shoot lagging video by seeing, for example, how long it takes to read a file from disk. With the new commands you can now query an individual layer's status.
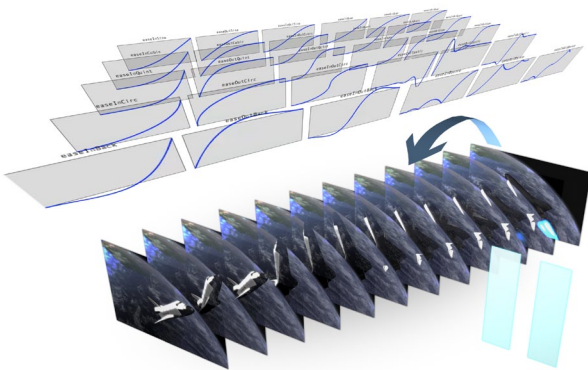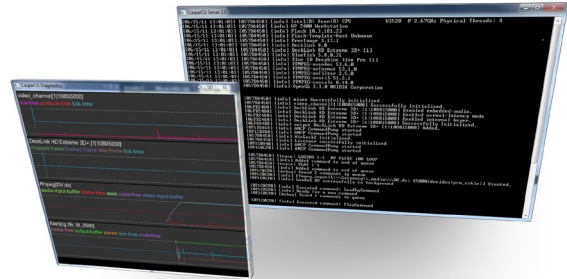
Animated transitions, queuing and custom loop points

By using the built-in animation functions, you can instantly create a professional transition between playing media, no matter if it is video, *Flash* templates, audio or images. Mix between a video loop and a graph, or wipe on a chart on top of an image, for example.

Video and audio files can now have a custom in-point for the built-in looping functionality. You can also choose to pause and seek in any playing media. With new command functionality you can also queue several video clips and have them automatically play the next clip once the the previous clip has finished.

Grid-view of all playing media

With a simple command, you can output all your playing channels as a grid view to a screen and/or video output. Combined with the feature that lets you grab the input video from a *DeckLink* card, you can now build yourself a monitoring station!
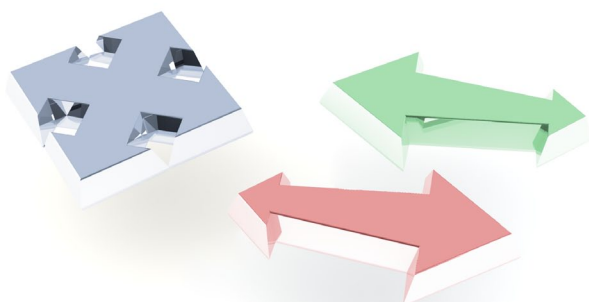
Real-time video effects

All playing media can be manipulated in real-time. You can move, scale, mask and change the opacity and video plus audio gain with the new real-time **Mixer** feature, and take advantage of the built-in animation types, just like with transitions.

Other GPU-accelerated effects include image adjustments such as *Brightness*, *Saturation* and *Levels* can also be applied, and the **Mixer** can even de-interlace video, transform it and then re-interlace it correctly.
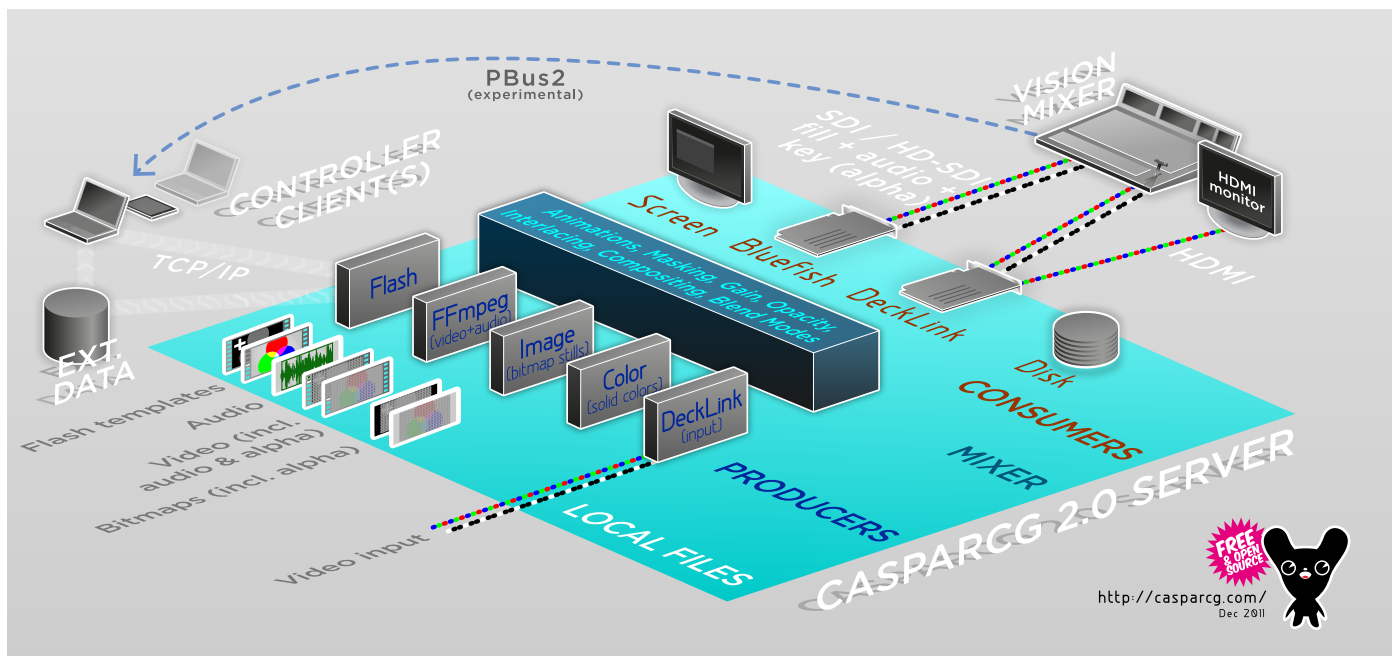
Other noteable features and enhancements in CasparCG Server 2.0

- All new GPU-accelerated internal pipeline with the following functions all being done on the GPU: *Compositing, Blend Modes, Brightness, Contrast, Saturation, Levels, Colorspace transforms, Interlacing, Per-layer image-transforms: opacity, gain, scaling, clipping, transform*, plus the *Color Producer.*
- Real-time GPU-accelerated Blending Modes between layers. Supports *Add, Screen, Multiply* and many more.
- Added an *Image Scroll Producer* that will automatically scroll a large bitmap in the specified direction and speed. Great for credit rolls!
- Support for FFmpeg-filters such as yadif de-interlacer (optimized in CasparCG for full multi-core support,) *De-noising, Dithering, Box Blur* and many more.
- Parallel decoding of audio and video.
- Auto transcoder which automatically transcodes video and audio into compatible format for the channel.
- The *Screen Consumer* now automatically de-interlaces when receiveing interlaced content.
- Per-sample mixing between source and destination clips during video transitions.
- The *Flash Producer* now uses *DirectDraw* access, resulting in improved performance.
- Video, audio and image files can now be placed in subfolders, just like *Flash* templates.
- Smoother animations and better interlacing in the *Flash Producer.*
- Outputs (*Consumers*) can now be added and removed at run-time, without having to restart the server.
- Swap *producers* between layers and channels during run-time.
- Real-time GPU-accelerated Image adjustments on all playing media (including Flash templates.) Change Brightness, Saturation, Contrast and Levels on the fly!
- *DeckLink* output is now using the card's hardware clock.
- *Bluefish* drivers are now loaded on-demand, making it possible to have a single Server application.
- The *Decklink Consumer* now uses external key by default and has 32-bit embedded-audio support.
- The *Decklink Producer* now has 32-bit embedded-audio support.
- MIX transitation now work with transparent clips.
- Freeze on last frame of video clips enabled by default.
- Producers' and Consumers' buffering are now configurable.
- *Flash* template-hosts configurable for different video-modes. Previously they were always hosted in HD.
- Reduced memory requirements.
- Removed 99% of "warm up lag" which occured when playing the first media clip after the server has started.
- Memory support increased from standard 2 GB to 4 GB on 64-bit Win 7 OS.
- Real-time commands viewable in the new *Console* window.
- Improved logging with full exception details, and a new log file for every server start.
- Backwards-compatible *AMCP* protocol supporting all new server features.
- Find out the running version of the CasparCG Server and the TemplateHost via a network query.
- Major code refactoring for improved readability and maintainability. 66% of legacy code removed.
- Rewritten to take advantage of common standardized libraries instead of custom solutions.

Download your professional play-out server today!
*http://**casparcg.org***