

Post-Production Data Server



Resolution
is narrower than
ignore probes
only probes
is wider than
is an exact width
Sort
by duration
by keycode
by path
by timecode
by width
Tape
tape name is
tape name matches
Timecode
has valid continuous timecode
has timecodes
has timecodes 2
contains a given timecode
contains a timecode range

Designed from the ground up to stream images.

Fit for Purpose

For more than a decade, Baselight systems have been leading the market in grading high-resolution images. Integral to the success of those systems has been the development of a unique storage technology, capable of streaming multiple 4K image sequences.

FLUX Store is networked post-production storage that utilises the high-bandwidth internal disk system and cloud network infrastructure developed for Baselight. It can be deployed in a facility as easily as general storage, whilst providing a solution that is purpose designed and industry proven for streaming high-resolution media.

Scalable and Affordable

Each FLUX Store provides either 40TB or 80TB of streaming protected storage using a constant-rate hardware RAID 60—developed by FilmLight—across the 24 drives. FLUX Store has a filesystem designed specifically for handling image streams with minimal fragmentation and seeking, which allows the use of high-capacity, lower RPM drives resulting in a low cost per TB.

Each store is connected to the Baselight cloud network by dual 10GbE links capable of multiple streams of 2K uncompressed—and even 4K playback to remote Baselight systems. Additional FLUX Store systems can be added to the cloud simply, as projects demand.

The store also appears as a high performance NAS to the rest of the facility using NFS or SAMBA over Ethernet.

Performance-Monitored

FLUX Store comes complete with its own diagnostic suite to maintain performance. This is based on the fl-diag disk system tests provided with Baselight—including read/write data rate, disk latency, SMART monitoring, etc.

Open Connectivity

You can connect any client to the FLUX Store, via either 10GbE or 1GbE, without the need for additional interface cards or any additional client licenses.

FLUX Tools

FLUX Store is equipped with the standard FLUX Tools (both command line and GUI) that are used to manage data on Baselight systems today. The tools include:

- » Batch copy
- » Batch conversion
- » File synchronisation

These functions will be augmented substantially by FilmLight's FLUX Manage product when it becomes available. This revolutionary new method of data wrangling is designed to cope with today's complex productions of 100:1 shooting ratios and 1000+ VFX shots (see the 'FLUX Manage' datasheet for more information).

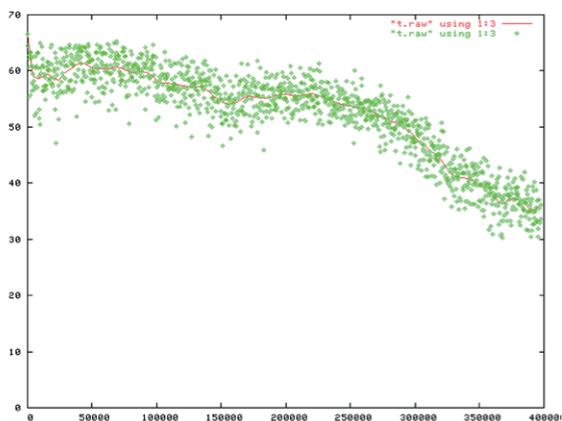
Laid out for Post-Production

Utilising features developed and proven over a decade of providing storage for high-resolution Baselight colour grading systems, the files on disk are:

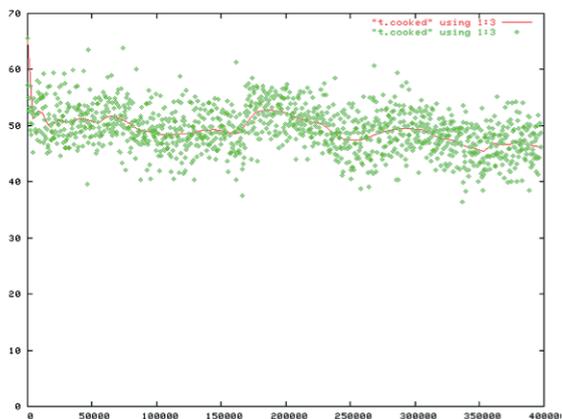
Constant Rate

The storage is made up of two sets of 12 drives that are each hardware RAID 6. The RAID 60-style configuration that overlays this is formed using a FilmLight-developed version of software RAID called CRAB (Constant Rate Allocated Blocks), arranged so that fast blocks from the periphery of one set are combined with slower blocks from the near-spindle tracks of the other set.

This ratio varies across the platters so that the storage keeps a constant raw block rate as it fills from 0% to 100%.



Data rate across the drive without CRAB



Data rate across the drive with CRAB

Contiguous

All image files that are copied onto the system using FLUX Tools are written in contiguous blocks without in-file fragmentation.

Written with Block Affinity

Image sequences that are copied onto the system using FLUX Tools are laid down with frames, so 0000.dpx is adjacent to 0001.dpx on the drive up to a specific batch size.

Defragmented

Image files placed onto the system without using FLUX Tools are automatically rearranged to be contiguous and to have block affinity.

Secure on XFS

XFS has been the favourite filesystem for post-production since SGI provided it to the community. Most facility engineers know how to maintain this system using standard Linux tools.

FilmLight constantly monitors and validates the latest released versions of the XFS filesystem, including folding back its own patches into the public domain. FilmLight's changes to XFS do not change the way the filesystem is presented to the system administrator.

Integrated with Baselight

Render Capacity

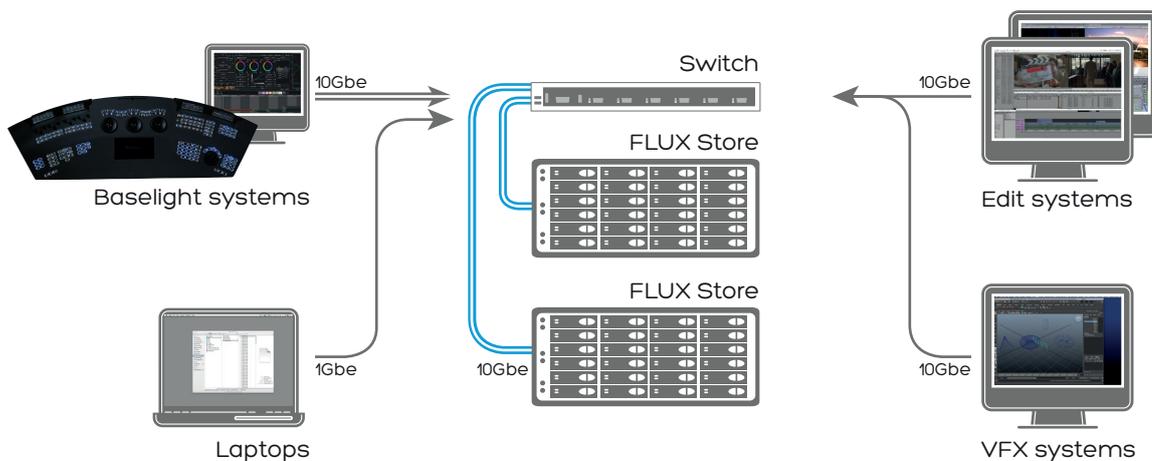
FLUX Store comes with the same GPU and CPU processing capability as a Baselight TWO system, as well as a Baselight Render licence so you can offload render tasks from your main suites.

VTRE

With the optional HD SD SDI I/O with deck control, you can perform video ingest and playout direct to the local storage or streamed across the Baselight cloud.

Streamed across the Cloud

Remote Baselight systems and other FLUX Store units read and write data using FilmLight's cloud service. This runs an image server daemon at the remote end of the network to stream data to/from the disks using the same I/O subsystem that Baselight would run locally. The data is then streamed across the cloud and striped across all available 10Gbe network interfaces (unlike network bonding, which can only accelerate multiple conversations and not a single data stream).



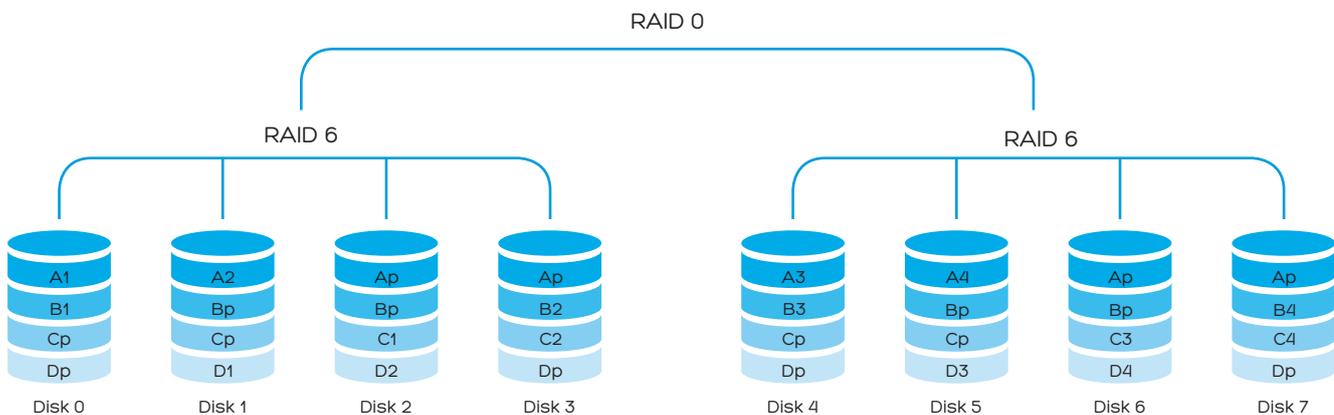
FLUX Store integrates easily with your other systems

RAID 60 in More Detail

The RAID 60 configuration of FLUX Store combines the striping of RAID 0 with the distributed double parity of RAID 6.

In short-FLUX Store means fast and secure storage for your images.

Striping helps to increase capacity and performance without adding extra disks, while each RAID set can withstand the loss of up to two disks without risk to your data.



RAID 60 example showing two sets of four drives-FLUX Store has two sets of twelve drives

Technical specifications

FLUX Store comes as standard with:

- » 24x4TB or 24x2TB drives in RAID 60
- » Dual 10GbE SPF+
- » Dual 1GbE CAT5
- » GPU for:
 - Baselight rendering
 - FLUX Manage processing (when available)

Options

The FLUX Store has two available PCIe slots, which can be fitted with:

- » QLogic/ATTO Fibre Channel card to bridge to SAN
- » HD SD SDI I/O with deck control
- » Red Rocket to decode R3D files on read (user-supplied)

Physical specifications

- » Chassis 5U 19" rack-mount
- » Dimensions (WxHxD) = 482x220x721mm (19x8.7x28.4")
- » Total weight = 50kg (110 pounds)
- » Power consumption = 100-240V, 14A (Max @ 110V)
- » Heat output = 2kW (6824 BTU/h)

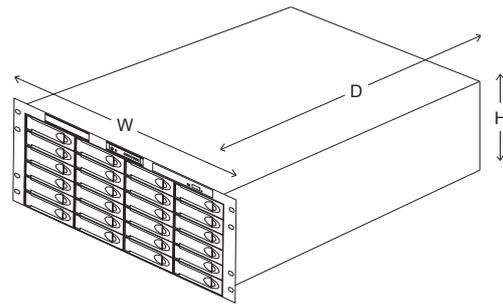
Performance

All figures for sequential file access on a 80TB FLUX Store:

	Write	Read
Local filesystem	950 MB/s	2100 MB/s
Local filesystem degraded RAID drive	950 MB/s	1800 MB/s
Local filesystem rebuilding RAID drive	780 MB/s	610 MB/s
Baselight cloud	950 MB/s	1500 MB/s*
NFS 10GbE	350MB/s	1100MB/s**

* Baselight v4.4 utilising dual 10GbE interfaces

** NFSv3 client mounted with 1MB data transfer buffer size



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