

High End



SYSTEMS
LIGHTING · WORLD-WIDE

Catalyst Topics

System Overview and Features

System Components & Setup

Hardware Setup

Catalyst Application Basics

Custom Content



Overview

- Catalyst is a Digital Media Server
 - Real Time DMX control of still images, movies and Live Video
 - Comes stocked with DHA gobo, HES LithoPattern and other image libraries
 - Accepts images, animations and QuickTime movies created in popular media and graphics applications such as Final Cut Pro, After Effects, Photoshop, etc
- Catalyst allows the Designer/ Programmer the ability to create, manipulate and control a wide range of image effects in real time via any DMX lighting console

Catalyst Features

Hands on Control via a DMX Console

- Channels
- Images
- Visual Effects
- Digital Video



Catalyst and DMX Control

51 Channels including:

- Pan Coarse/Fine
- Tilt Coarse/Fine
- Intensity
- Mspeed
- Control Channel
- Library
- File
- In/Out Frame
Coarse/Fine
- Play Mode/Speed
- Gobo Frame/Rotate
Coarse/Fine
- Strobe
- X/Y/Z Axis Rotate
Coarse/Fine
- Scale Coarse/Fine
- X/Y Position Coarse/Fine
- Mask/Rotate
Coarse/Fine
- CYM
- Graduated RGB
- Xfade
- Visual Effects
- Visual Effects
Parameters 1 & 2
- Info



Catalyst Images

- HES Litho Patterns
- DHA gobo library
- Hi Resolution Images
 - 1024x1024, 2048x1024, 4048x1024
- Movies
 - QuickTime Movie files (*.mov), Flash animations
- Digital Video
 - Via the Mac's Firewire Port



Catalyst Visual Effects

- Variable Masks
- RGB Color Mixing & Color Gradients
- Scaling
- X, Y & Z axis rotation
- Horizontal & Vertical Positioning
- Tiling
- Inverting
- Wobbling
- Strobing



Digital Video

via FireWire

- Compressed for high speed transfer
- Formats including:
 - DV, MiniDV
 - Other sources including DVD, digital betacam player, professional studio camera, etc can be used provided the source has been converted to FireWire
 - Note: Digital beta is the most widely used professional format



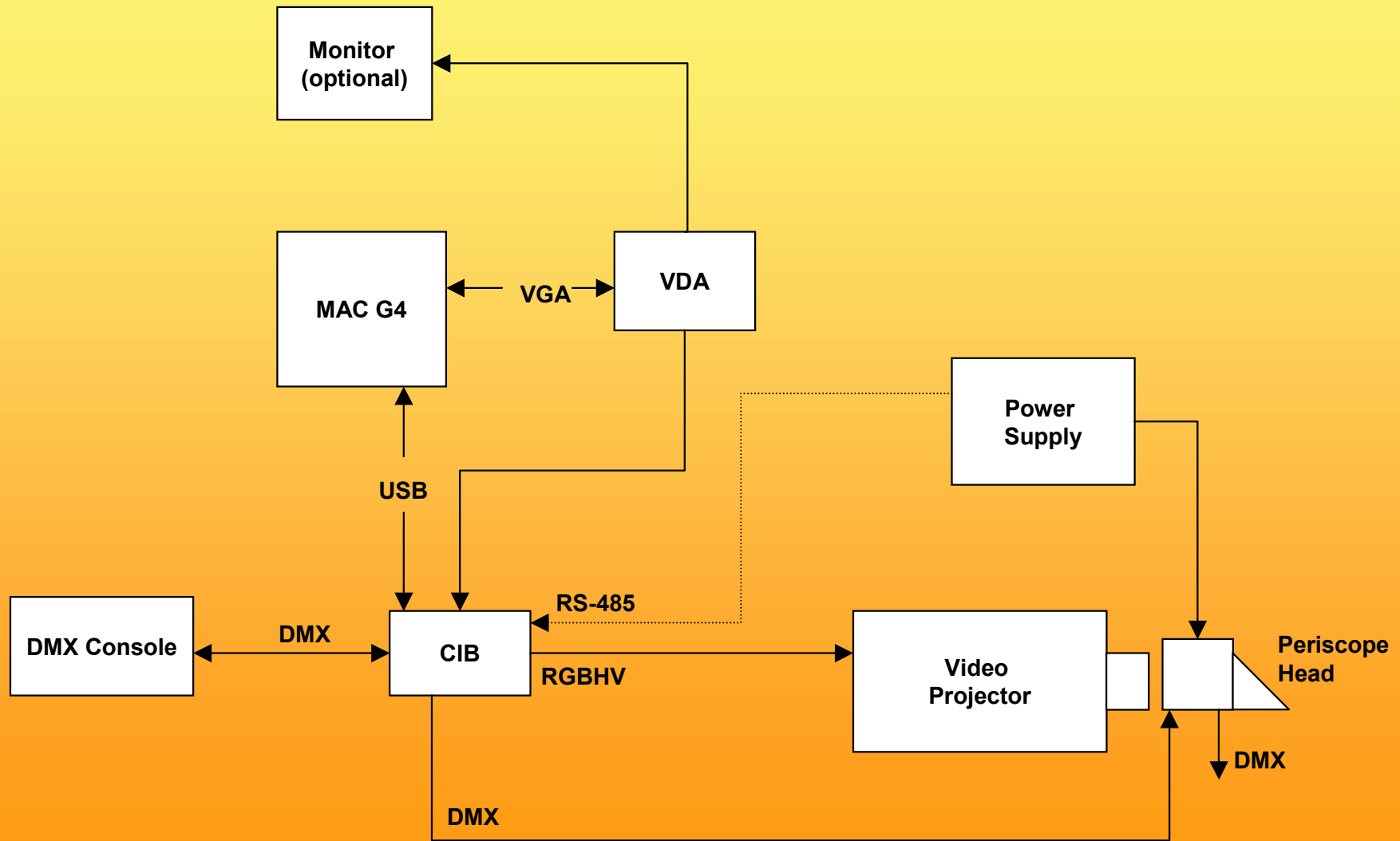
Catalyst

System Components

- Required Components
- Optional Accessories



System Components



System Components

- A Catalyst System consists of:
 - Macintosh G4 computer
 - The Catalyst software application
 - Catalyst Interface Box
 - Video Distribution Amplifier
 - Optional orbital movement system (mirror head)
- Other requirements for Catalyst:
 - A single lens video projector or video display of XGA resolution (recommended)
 - A DMX lighting console

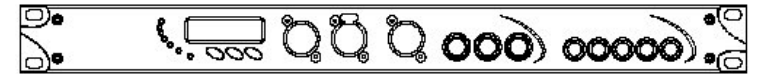


Catalyst Computer Control Rack

- Rackmount Apple 867MHz G4 with:
 - 256 MB RAM
 - 60 GB HD
 - DVD/CD-RW drive
 - NVIDIA GeForce2 Graphics card
 - USB and FireWire (1394) ports
 - Macintosh OS 9.2 or higher
 - Catalyst Software Application



Catalyst Interface Box



- USB Connection to the G4
- USITT DMX-512 compatible control interface (DMX In & Thru ports)
- XGA resolution output on 5 BNC connectors
- MIDI In/Thru/Out Connection
- Graphical display for information feedback including addressing of Catalyst System
- RS-485 output for projector control (future)

Video Distribution Amplifier

- 270 MHz UXGA
- Local Monitor Output



Orbital Movement System

- Moving mirror head
 - Orbital movement system that mounts to the front of a video projector
 - USITT DMX-512 compatible control
 - 360 x 270 degree movement
 - High resolution stepper motors-16 bit resolution
 - Mounting hardware for mounting to a variety of video projectors



Catalyst Hardware

Assembly and Setup

- 1. Bolting the Unistrut Frame to the Projector
- 2. Attaching the Head
 - Assembly of Head Mounting Piece
 - Bolting the Head Mounting Unit to the Frame
 - Attaching the Mirror Head
 - Adjusting the Uni-Strut
- 3. Plugging in the Power Supply
- 4. DMX
 - Plugging in DMX in and out
 - Assigning the DMX Address the the Mirror Head



Overview of Assembly Parts

- Mirror Head, Mounting Unit, and Crosspieces



- Mirror Head



- Power Supply



- Projector



Bolting the Unistrut Frame to the Projector



Figure 1: First Crosspieces

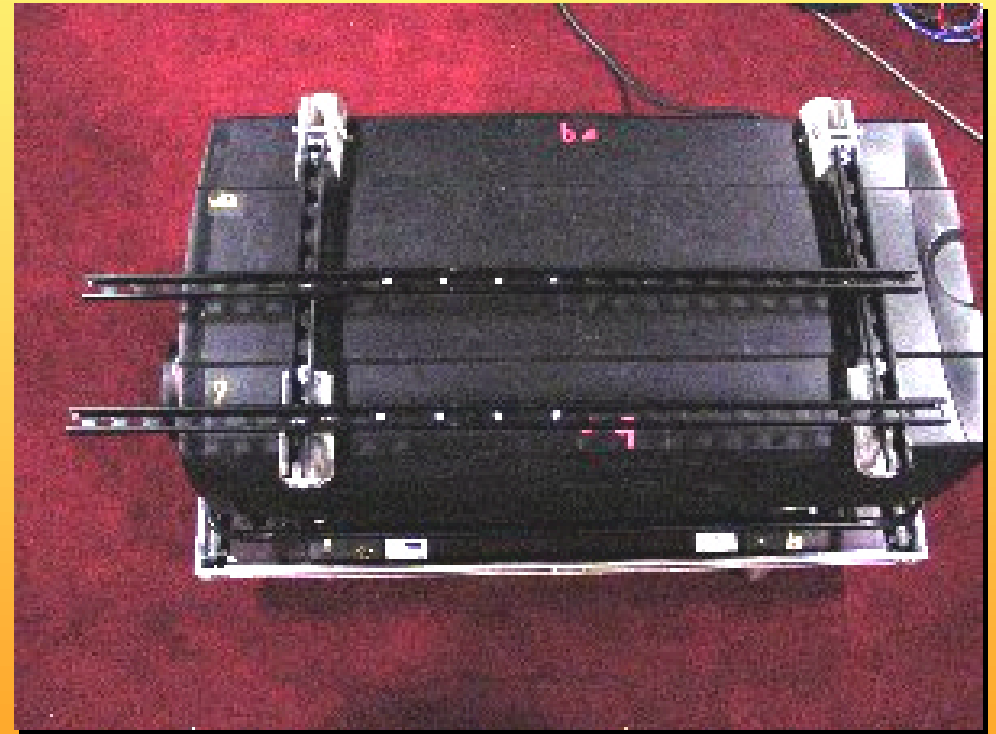


Figure 2: Second Crosspieces

Attaching the Mirror Head



Figure 1: Head Mounting Unit bolted to Frame

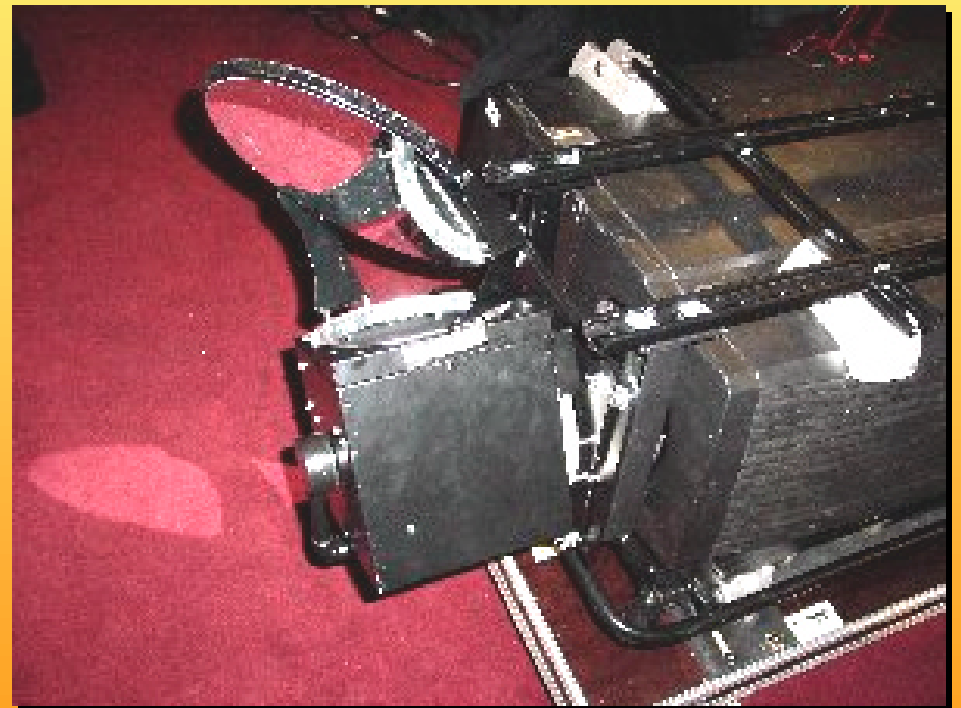
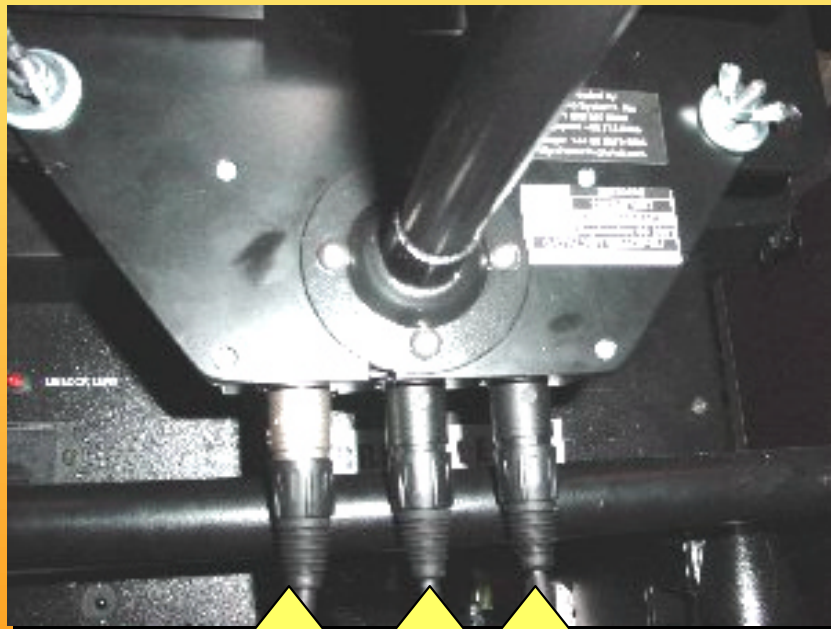


Figure 2: Mirror Head attached to Mounting Unit

Power Supply & DMX

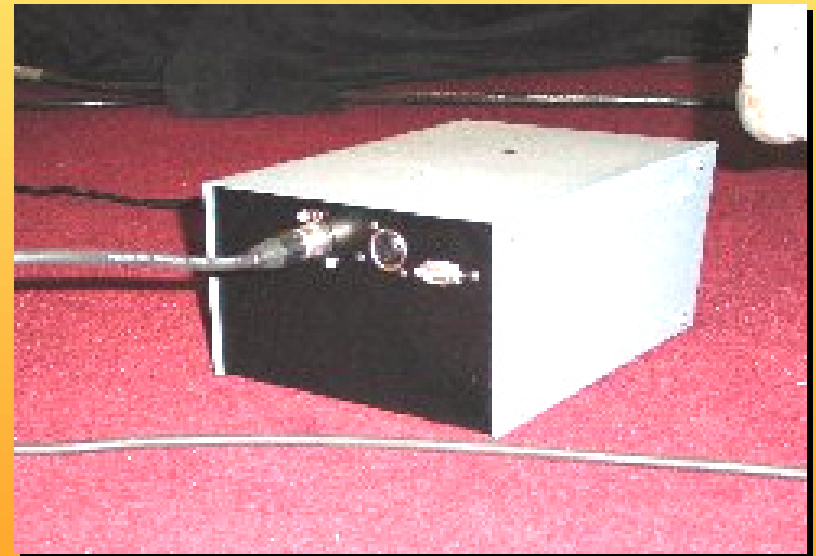
Figure 1: Power Supply to Head



Power
Supply

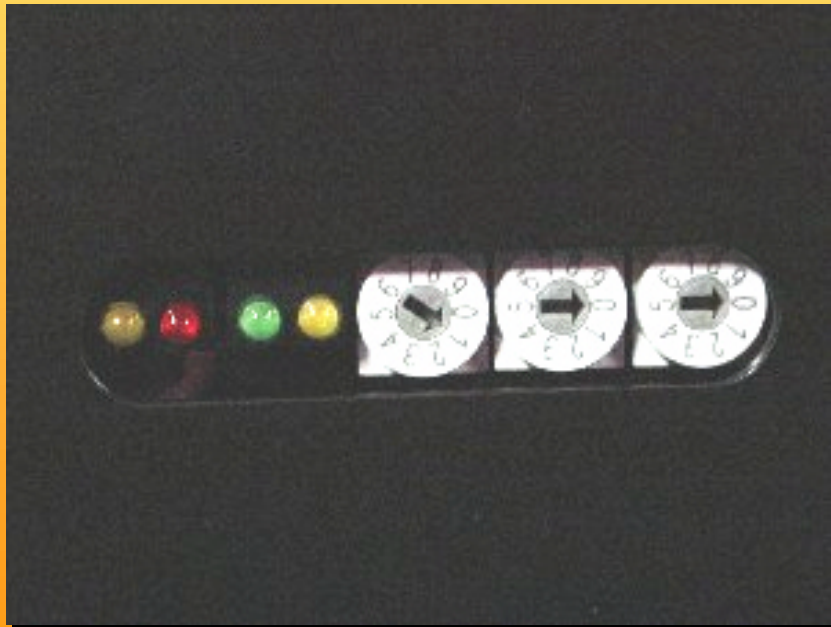
DMX
In Thru

Figure 2: Power Supply



Assigning a DMX Address to the Mirror Head

- Set the Start Address of the Head using the three rotary switches located on head



Catalyst

Application Basics

- Catalyst Application Folder
- Library Files Folder
- Info Screen
- Addressing the Catalyst System
- Exiting Catalyst Software
- Shutting down the Macintosh



Application Basics

Catalyst Application Folder

- The Catalyst Application Folder will be located on the Desktop
- Important files within the Catalyst folder:
 - Catalyst Application
 - Library Files Folder
 - Other related files include:
 - Into Extensions Folder
 - Sam SC Settings
 - Catalyst Library Files.txt
 - _lib.lib



Image Files

Catalyst Library Files Folder

- All images reside in the Catalyst Library Files folder
- Inside the Library Files Folder are 255 Libraries; Each library contains 255 Files
- These files are the Images (stills, animations or QT movies) that are accessed when programming the Catalyst from a DMX desk



Application Basics

Launching Catalyst

- Double click on the Catalyst application
- Catalyst will launch into fullscreen mode
 - Hold down “Shift” key to avoid entering fullscreen mode while launching program

Note: User will not be able to use the mouse while in fullscreen mode; use Hot Key commands to exit fullscreen mode



Application Defaults

Defaults when using a CIB and DMX Controller:

- Black
- Dim at 0%
- When 'Preview' mode, user can't use mouse to make changes in the Info Screen; editing is only enabled via DMX Controller

Defaults when not using a CIB and DMX Controller:

- White
- Dim at 100%
- User is able to click on the Info Screen with Mouse and make changes, but is not able to store looks

Application Basics

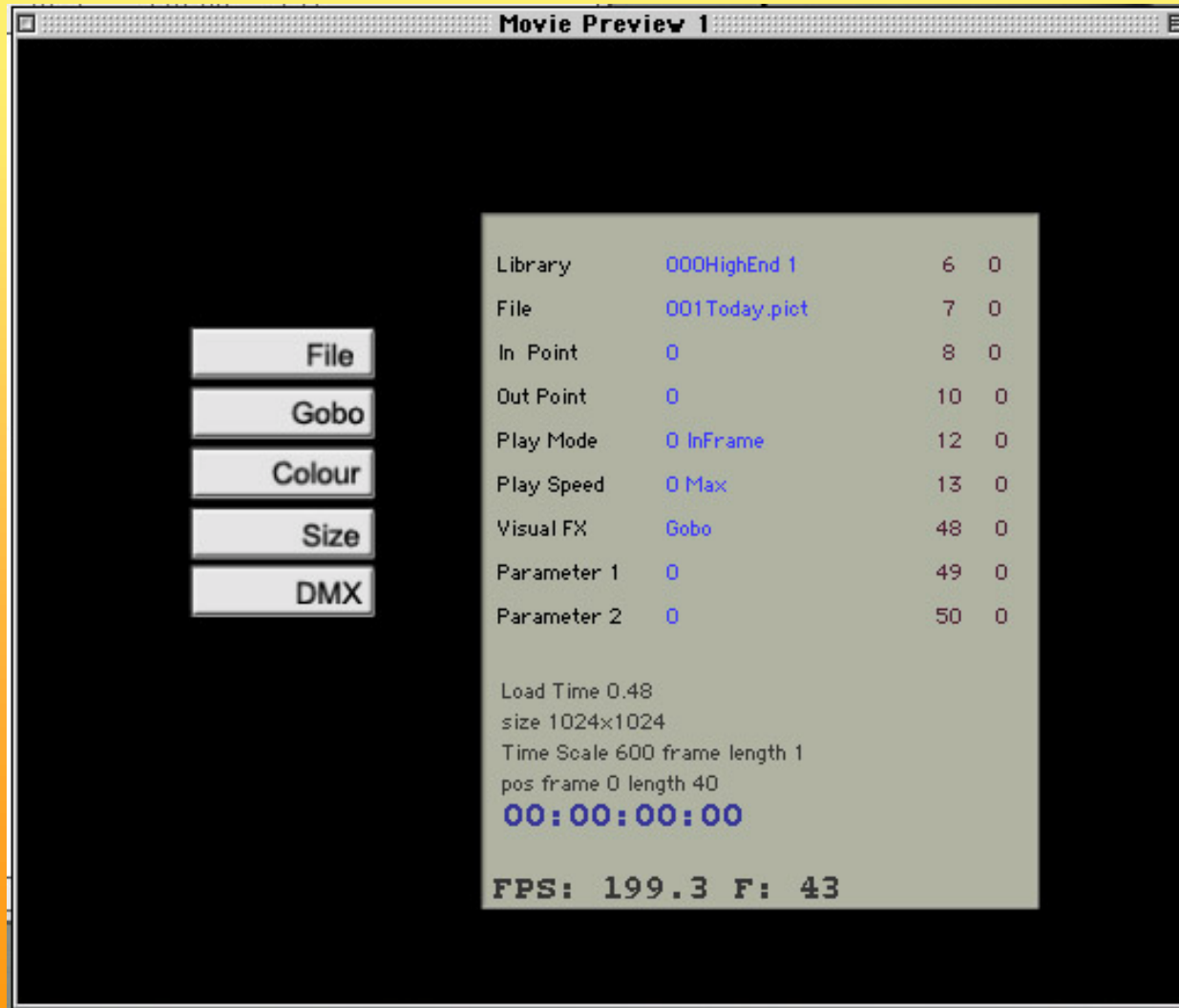
The Info Screen

- Items that are located in the Info Screen:
 - File
 - Gobo=Keyboard Hot Key “E”
 - Colour=Keyboard Hot Key “R”
 - Size=Keyboard Hot Key “T”
 - DMX address=Keyboard Hot Key “Y”
- Use the Keyboard Hot Keys for the following:
 - Q=Info Screen Off
 - W=Info Screen On
 - A=Catalyst Full Screen On
 - S=Catalyst ‘Preview’ Screen (Program still Active)



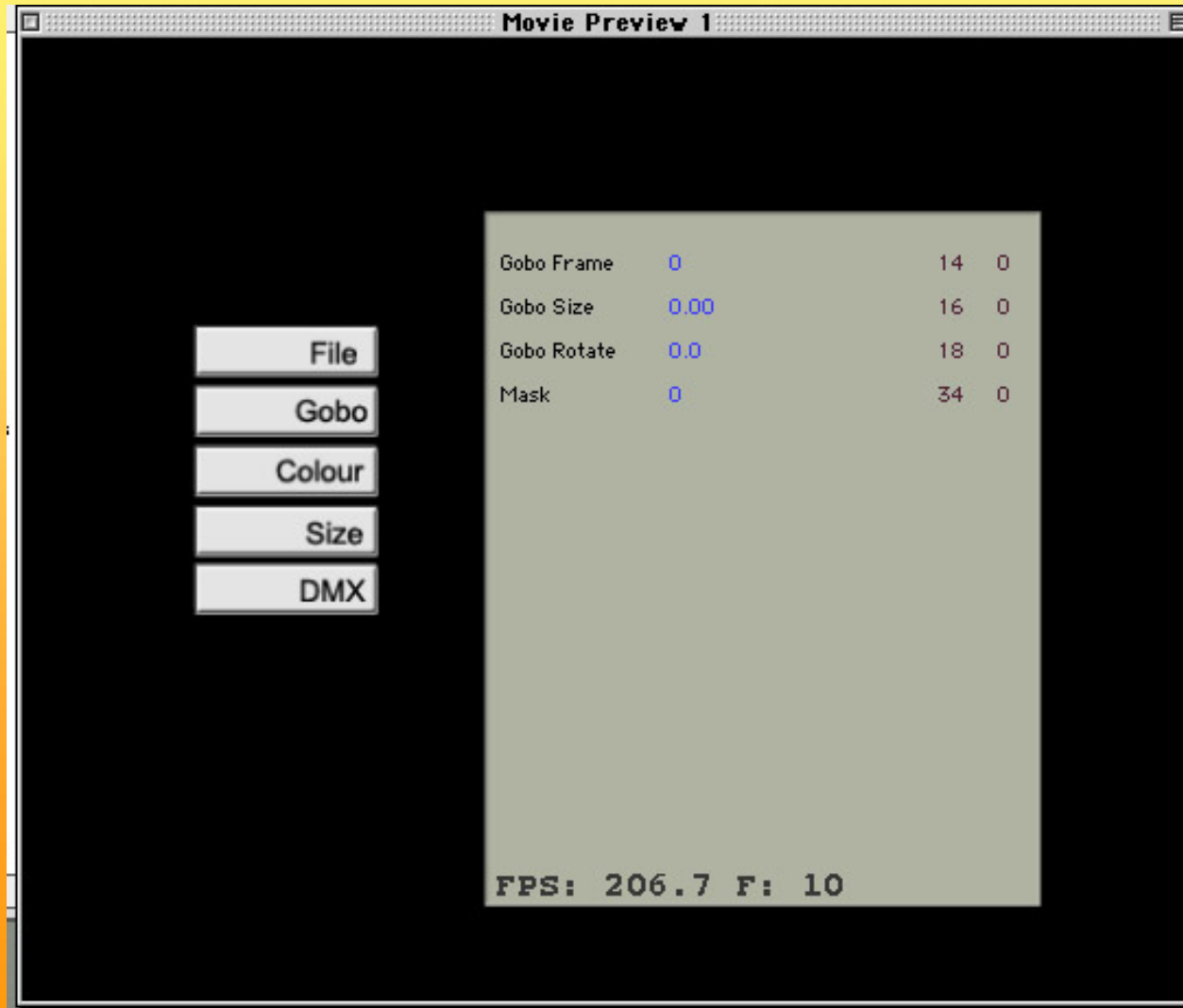
The Info Screen

Keyboard Hot Key "W"



Gobo Info Screen

Keyboard Hot Key "E"



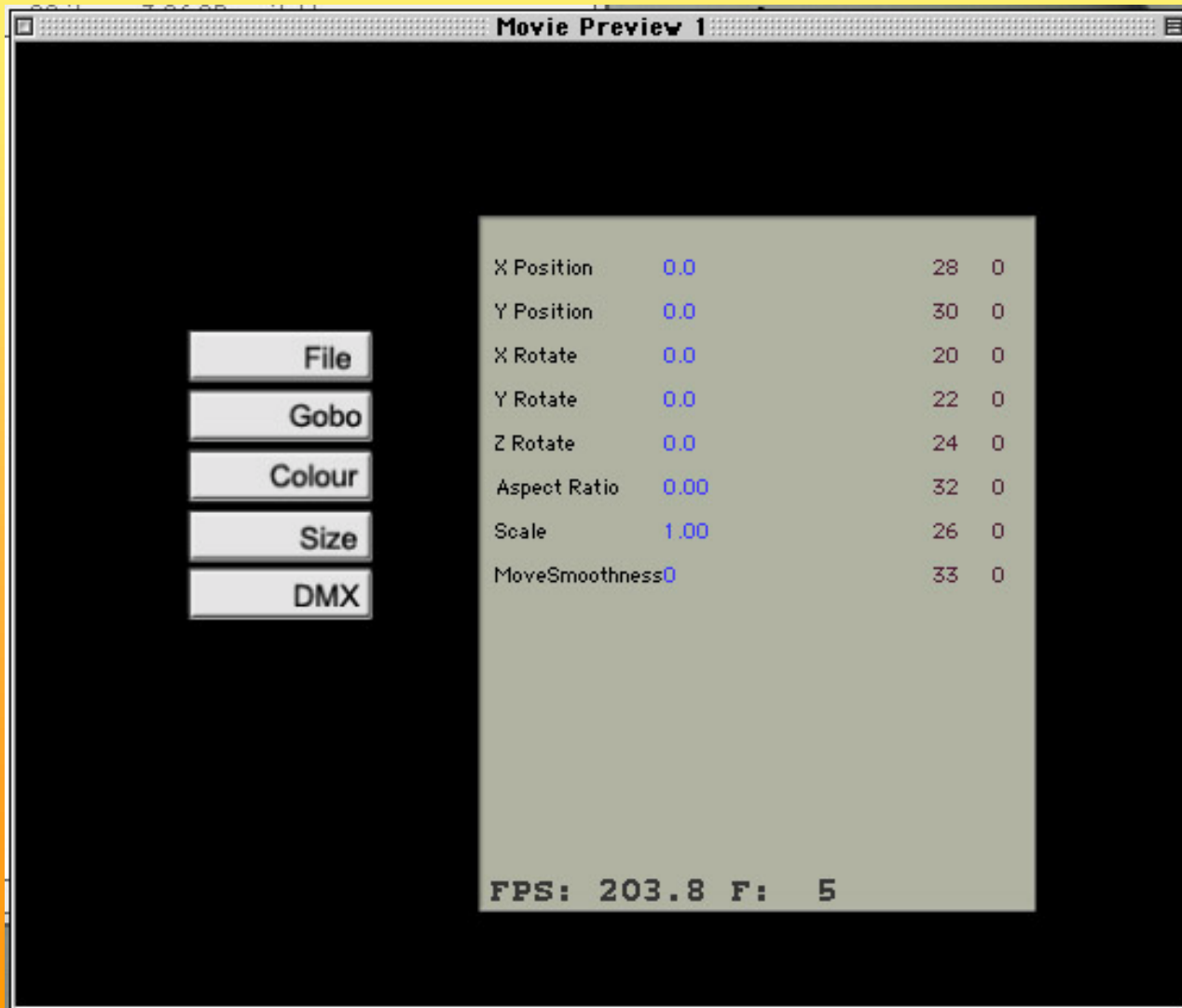
Color Info Screen

Keyboard Hot Key "R"



Size Info Screen

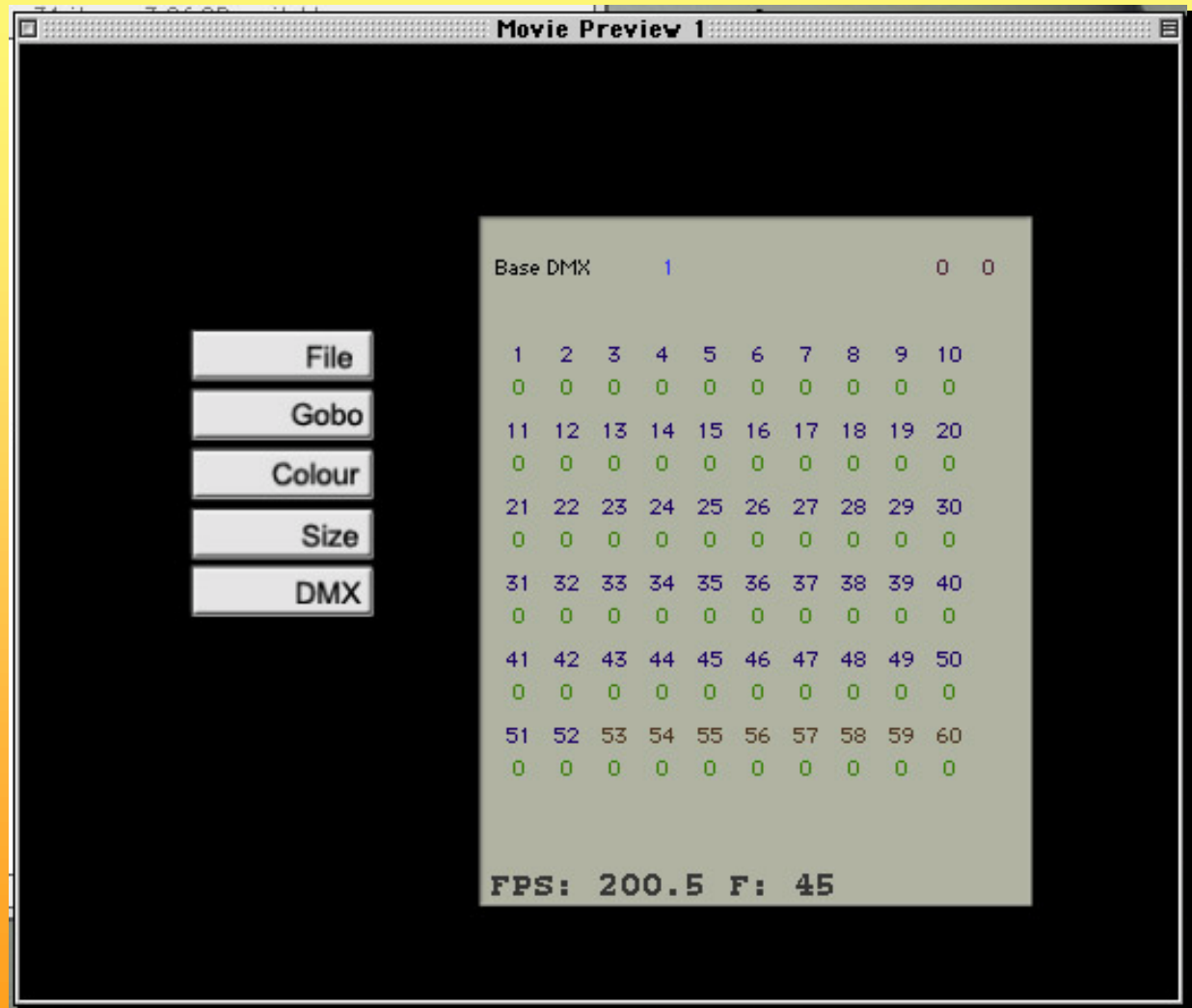
Keyboard Hot Key "T"



DMX Info Screen

Keyboard Hot Key "Y"

- Click on Address at top of DMX Info Screen and Drag Mouse to set starting channel of DMX address



Application Basics

Exiting the Catalyst Application

- Within Preview mode, select 'Quit' from the 'File' menu, or;
- Press Apple Command + Q to quit program

Shutting Down the Macintosh

- Select 'Shut Down' from 'Special' menu in Finder



Catalyst

Resolution and Limitations Explained

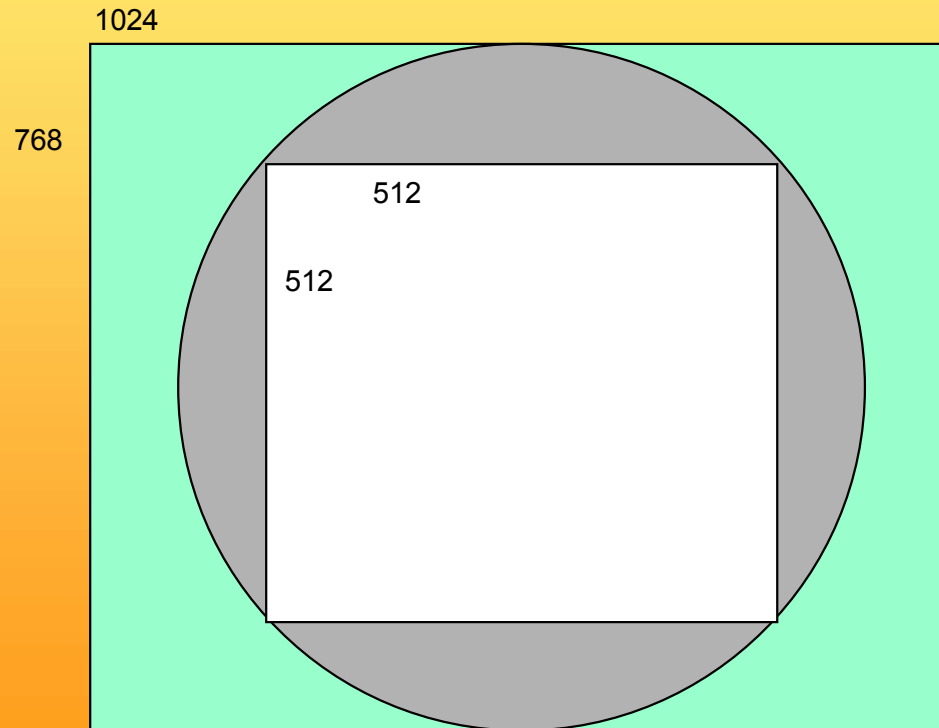
- Using a Catalyst System without a Mirror Head
- Using a Catalyst System with a Mirror Head

Video Resolution for Catalyst

- 1024x768 effective resolution for the projection area when not using the mirror head
- Effective resolution for projection area within the 1024x768 frame when using a head:
 - Circle mask is recommended
 - A Square image will fit within the circle mask at a resolution of approx 512 x 512
 - Other proportionately sized images may fit within the circle (i.e. 612 x 479)



Effective Resolution when Using a Mirror Head



Video Resolution

- Measurement
 - Across the largest circle (not an ellipse) that fits in the projection space
 - On a TV screen such a circle would span $\frac{3}{4}$ of the screen width (4:3 ratio)
- ‘Picture Height’
 - Since the circle exactly fits the screen height, ‘Picture Height’ stands for a distance equal to the diameter of the circle
 - This term is also used when talking about horizontal resolution



Catalyst

Adding Custom Content



Custom Content

Adding Custom Content

- Drag the image files into a Library folder
 - (path: Catalyst Application Folder → Library Files Folder → 255 Library Folders)
- Rename the image file as 'xxximage' where 'xxx' represents a DMX value between 001-255
 - Image files within each Library folder are numbered between 001-255 to correspond to DMX values





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