Student Technology Fee
Grant Proposal

2007-08

Dr. Jim McCrory
Approved
Denied
Comment: __________________________

Diana Hamilton
Approved
Denied
Comment: __________________________

Gary Gatch
Approved
Denied
Comment: __________________________

Mike McDonald
Approved
Denied
Comment: __________________________

Dale Martin
Approved
Denied
Comment: __________________________

Network wiring?
Student Technology Fee
Grant Proposal Request Form
Fiscal Year 2007-08
Northwestern State University of Louisiana

ALL BLANKS MUST BE FILLED COMPLETELY

Prepared by: Shawn Parr & Scott Burrell For: Priority

Department/Unit: Theatre/CAPA College: Liberal Arts Campus: Natchitoches

Which NSTEP Goals/Objectives does this project meet? 1, 2, 6, 7, and 8

Requested equipment will be located/installed/housed? Building 025 Room 100

Are department property policies and procedures in place for requested equipment? Yes

Which individual will be responsible for property control of the requested equipment? Robert Graham

Signature: ___________________________ Date: 11/29/07

Grant Proposal Requested Amount: $19,076.46 Budget Attached (circle one): YES/NO

Grant delivered to Student Technology located in Watson Library, Room 113. Date

The grant proposal must include all specifications, description, model number, quotation, cost, state contract number, and vendor for each item. If the proposal does not include all requested information, it will be returned to requestor.
1. Describe target audience.
This projection system will be available to, and utilized by, the faculty and student body of the Theatre Department. Technical/Design Concentration students and faculty will have the majority of hands on use with the system. Dance and Acting Directing students and faculty will have the ability to expand their creative visions through use of the system.

2. Describe project/initiative for which you are requesting funds.
The project is to assemble a fully functional video projection and audio playback system. The system centers around a computer system with specialized cue playback software that can handle multichannel audio, multichannel video, and system control of other devices via standard protocols.

The system will initially be configured to handle up to four projectors, and two such projectors are part of the system as specified. Included is an audio interface capable of providing up to eight channel output and MIDI control which is compatible with our Lighting Consoles as well as various other equipment.

The projectors specified for this system where chosen for their ability to project an image of sufficient size and with adequate brightness to be used during a dance concert or theatrical performance with stage lighting still in effect. Most projectors commonly found on campus do not allow for either the sizes needed or the brightness to overcome stage lighting.

3. State measurable objectives that will be used to determine the impact/effectiveness of the project.
A. Improve the Theatre Curriculum and improve the technology available for student learning and research work.
B. Improve our students educational experience and skill set in order to enable them to compete in the modern Graduate School and workplace environments.
C. Increase the recruitment and retention abilities of the department through availability of resources found in the current workplace.

4. Indicate how each project objective will be evaluated.
A. We shall evaluate how the system is used in productions and as part of classroom projects. We will also get feedback from the general student body and general population that attend productions and events in which the system is used.
B. Design and Technology students go through a regular portfolio review process where experience with the technology shall be evaluated through their presentations. In addition recently graduated students often return feedback on their ability to successfully gain employment or graduate student positions.
C. The system can be utilized for workshops for recruitment drives on campus such as the Louisiana Thespians Conference which is hosted annually here in Natchitoches. During any recruitment drive our faculty and students take a Department portfolio showcasing work that has been accomplished on our campus, in which this system can be a highlight.

5. If funded, which NSTEP objective(s) will this funding of this project advance. How will funding of the project advance the University and College/
technology plan?
1. To improve access to technology by students, faculty, and staff at Northwestern State University. This system will give students and faculty access to equipment specialized for their educational and research needs.

2. To provide classrooms with updated technology and multimedia. Classes in the Department of Theatre are not contained in a standard classroom, but bridge outwards to incorporate our performance and rehearsal spaces. This system will give those spaces access to multimedia capabilities that are not currently available due to either lack of equipment or inadequate equipment.

3. To provide a system for maintenance, upgrade, user training, and support of technology that will extend into the future. All Design/Technical staff, faculty, and students will be trained on how the system operates, what functions require maintenance, and how to plan for maintenance to ensure continuous effective use throughout the life of the system. These concepts shall prove valuable to any future systems that replace this system at the end of its useful life span.

4. To establish processes that encourage technology initiatives by faculty, staff, and students. With this system in place student and faculty members will be able to experiment with bridging the live performance experience with multimedia elements in a way they have not been able to on this campus before. In order to fully utilize this system some student and staff members shall challenge themselves to learn other new technologies to create the multimedia that is controlled by this system.

5. To encourage innovation and research. As with #7 above, this system will allow a new level of creativity in design, direction, and choreography. Directors and Choreographers shall be capable of experimenting with a combination of static and dynamic elements, both of live and rich media experience natures.

6. Provide a justification for funding of this project. Estimate the number of student that will be served per academic year and in what ways. Please indicate also any unique needs of the target group.
This project will have a visible and remarkable impact upon the Department, the University, and the surrounding region in many ways:

A. Teaching the student body to use modern technology in existing and experiemental ways
B. Improving the quality of productions available on campus for both the student body and citizens of the surrounding regions
C. Improving the quality and scope of student portfolios that are vital to their success after graduation
D. Improves upon our ability to recruit and retain students
Approximate number of students served per academic year, with the assumption that 3 production shall utilize the system in a single academic year:
Students working on a production - 80 per production, 240 per year
Students attending a production - 1000 per production, 3000 per year

7. List those individuals who will be responsible for the implementation of the project/initiative and indicate their demonstrated abilities to accomplish the objectives of the project.
Robert Graham - MFA Lighting Design - Facilities Manager/Production Manager/Lighting Designer
Shawn Parr - BFA Theatre Technology - Adjunct Professor/Sound Designer/Technology Consultant

Both faculty members have degrees and professional experience with configuring and utilizing cue playback and multimedia control systems. In addition both are active in their respective design fields and maintain communication with other schools and technology companies in order to keep up with current trends in technology.

8. Describe any personnel (technical or otherwise) required to support the project/initiative.
Alfred Ehlers from Student Technologies will need to configure the computer system as is typical of a Student Technology project.
No other staff or faculty is required for this project to succeed.

9. Provide a schedule for implementation and evaluation.
March 2008 - order equipment
May 2008 - all equipment received and configured
June 2008 - Equipment ready to be field tested and evaluated. Any software configuration changes necessary shall be reported to Student Technology
July 2008 - If necessary confirm that any changes were successful

10. Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five years.
No hardware upgrades shall be necessary within five years, with the exception of expendable items such as lamps for the projectors. Expendable items shall be covered by the Department of Theatre’s annual budgeting.

Software upgrades will only be necessary if bugs are found in the system. The developer of the cue playback software has thus far released all such upgrades for free. Depending on system configuration these upgrades may be capable of being handled without any impact outside of the Department of Theatre.

11. Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through a Student Technology Fee.
If you are requesting equipment that will be either/or checkout to students or moved within the department, you must provide a checkout/loan policy.
The computer components of the system shall be located in a secure control booth location in one of our existing Theatres. This system shall be protected by a UPS (uninterruptible power supply) that will protect the system from power surge and sag, and provides voltage regulation. In the rare occasion that the system is
required in one of our other theatre spaces Movable Properties paperwork shall be utilized to document and control the movement of the equipment. The equipment shall be in a locked control booth in any of our three theatre spaces.

The projectors and camera shall be stored in a heavy duty locked cabinet located in our Department Chair’s office. They will be made available to be checked out for the use of production work on a production by production basis. Existing Movable Properties systems shall be utilized as with the computer portion of the system. While used in the theatre spaces the projectors will typically be hung within a rig that will make them difficult to access and more difficult to remove.
Appendix A: Budget

The following items comprise the total of equipment needed for a fully functioning system. Specifications for each item are available in Appendix C. Pricing quotes from preferred vendors are available in Appendix B.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item</th>
<th>Description</th>
<th>Vendor</th>
<th>Price</th>
<th>Subtotal</th>
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<tbody>
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<td>Mac Pro</td>
<td>Computer system</td>
<td>Apple</td>
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<td>ProDowser</td>
<td>Projector Dowser</td>
<td>Bakerwood Lite Industries</td>
<td>$225.00</td>
<td>$450.00</td>
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<tr>
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<td>Echo AudioFire 8</td>
<td>Firewire Audio interface</td>
<td>Full Compass</td>
<td>$461.25</td>
<td>$461.25</td>
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<tr>
<td>2</td>
<td>Panasonic PT-D5700U</td>
<td>Projectors</td>
<td>Full Compass</td>
<td>$5,425.15</td>
<td>$10,850.30</td>
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<tr>
<td>2</td>
<td>DVIAJ-HD15P</td>
<td>DVI to VGA adaptor</td>
<td>Full Compass</td>
<td>$17.99</td>
<td>$35.98</td>
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<td>2</td>
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<td>Lamp kits</td>
<td>Full Compass</td>
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<td>$0.00</td>
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<td>Canon GL2</td>
<td>MiniDV Camcorder</td>
<td>Full Compass</td>
<td>$2,203.52</td>
<td>$2,203.52</td>
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<tr>
<td>1</td>
<td>Canon HC4100</td>
<td>GL2 storage/carry case</td>
<td>Full Compass</td>
<td>$302.41</td>
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<td>ProMIDI License</td>
<td>Qlab License</td>
<td>Figure53</td>
<td>$150.00</td>
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<tr>
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<td>ProVideo License</td>
<td>Qlab License</td>
<td>Figure53</td>
<td>$150.00</td>
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</tr>
</tbody>
</table>

**$19,076.46**
Appendix B: Vendor Pricing
Customize your Mac.

Use the options below to build the system of your dreams.

Processor
Get 8-core power from two 3.0GHz Quad-Core Intel Xeon "Clovertown" processors, or enjoy quad-core performance with two Dual-Core Intel Xeon "Woodcrest" processors, available in speeds up to 3.0GHz.

- Two 2.0GHz Dual-Core Intel Xeon [Subtract $269]
- Two 2.66GHz Dual-Core Intel Xeon
- Two 3.0GHz Dual-Core Intel Xeon [Add $719]
- Two 3.0GHz Quad-Core Intel Xeon [Add $1348]

Memory
Mac Pro systems support up to 16GB of 667MHz DDR2 fully buffered ECC RAM in eight FB-DIMM slots. Choose among a variety of memory amounts and configurations.

- 1GB (2 x 512MB) [Subtract $629]
- 2GB (4 x 512MB) [Subtract $360]
- 4GB (4 x 1GB)
- 8GB (8 x 1GB) [Add $900]
- 8GB (4 x 2GB) [Add $1260]
- 16GB (8 x 2GB) [Add $3420]

RAID Card
Enhance storage performance and data protection by configuring your system with the Mac Pro RAID card and multiple hard drives.

- None
- Mac Pro RAID Card [Add $899]

Hard Drive – Bay 1
Your Mac Pro includes four Serial ATA 3Gb/s hard drive bays, offering up to 3 terabytes of data storage. Configure each drive bay separately.

- 250GB 7200-rpm Serial ATA 3Gb/s
- 500GB 7200-rpm Serial ATA 3Gb/s [Add $116]
- 750GB 7200-rpm Serial ATA 3Gb/s [Add $269]
Hard Drive - Bay 2
Configure the second hard drive bay with a 500GB or 750GB drive.
- None [Subtract $296]
- 500GB 7200-rpm Serial ATA 3Gb/s
- 750GB 7200-rpm Serial ATA 3Gb/s [Add $153]

Hard Drive - Bay 3
Configure the third hard drive bay with a 500GB or 750GB drive.
- None [Subtract $296]
- 500GB 7200-rpm Serial ATA 3Gb/s
- 750GB 7200-rpm Serial ATA 3Gb/s [Add $153]

Hard Drive - Bay 4
Configure the fourth hard drive bay with a 500GB or 750GB drive.
- None
- 500GB 7200-rpm Serial ATA 3Gb/s [Add $296]
- 750GB 7200-rpm Serial ATA 3Gb/s [Add $449]

Graphics
Choose from a selection of PCI Express graphics cards from both NVIDIA and ATI, each able to support up to two displays including at least one 30-inch Apple Cinema HD Display. Select a higher-performance card for more advanced graphics work, or add more than one card to power an array of displays simultaneously for visualization projects and large display walls.

Please note: The Mac Pro provides a total of four PCI Express expansion slots, if both the Mac Pro RAID card and fibre Channel card options are selected, up to two graphics cards may be installed.

- NVIDIA GeForce 7300 GT 256MB (single-link DVI/dual-link DVI) [Subtract $134]
- 2 x NVIDIA GeForce 7300 GT 256MB
- ATI Radeon X1900 XT 512MB (2 x dual-link DVI) [Add $90]
- 3 x NVIDIA GeForce 7300 GT 256MB [Add $135]
- 4 x NVIDIA GeForce 7300 GT 256MB [Add $270]
- NVIDIA Quadro FX 4500 512MB, Stereo 3D (2 x dual-link DVI) [Add $1350]

Display
Visualize your creations on a beautiful Apple LCD display, featuring an anodized aluminum enclosure, FireWire and USB 2.0 ports, and an industry-standard DVI connector for a direct pure-digital connection.

- None [Subtract $549]
- Apple Cinema Display (20" flat panel)
- Apple Cinema HD Display (23" flat panel) [Add $250]
- Apple Cinema HD Display (30" flat panel) [Add $1050]

Second display
All Mac Pro graphics cards support two Apple displays: a 30-inch and either a 20-inch or 23-inch Apple Cinema Display. To power two 30-inch Apple Cinema HD displays from a single card, you must select the ATI Radeon X1900 XT or NVIDIA Quadro FX 4500.

- None
- Apple Cinema Display (20" flat panel) [Add $549]
- Apple Cinema HD Display (23" flat panel) [Add $799]
Optical Drive
Your Mac Pro comes standard with one 16x double-layer SuperDrive that burns and plays both CDs and DVDs. Add a second SuperDrive to streamline disc burning.

- One 16x SuperDrive
- Two 16x SuperDrives [Add $89]

Wireless Options
Configure your Mac Pro with Bluetooth 2.0+EDR and AirPort Extreme wireless to connect to peripherals and networks without wires.

Please note: Selecting an AirPort Extreme card may delay the shipment of your Mac Pro.

- None [Subtract $71]
- Bluetooth 2.0+EDR module [Subtract $45]
- AirPort Extreme card (Wi-Fi) [Subtract $27]
- Both Bluetooth 2.0+EDR and AirPort Extreme

Fibre Channel Card
To connect to an Xserve RAID, you will need a Fibre Channel PCI Express card (host bus adapter).

- None
- Dual-channel 4Gb Fibre Channel PCI Express card [Add $539]
- Quad-channel 4Gb Fibre Channel PCI Express card [Add $899]

Modem
Choose the Apple USB Modem to access the Internet using your dial-up service. Small and light, it connects to the USB port on your Mac Pro.

- None
- Apple USB Modem [Add $44]

Apple Keyboard and Mouse
The wired Apple Keyboard and Mighty Mouse come standard with your Mac Pro. Or you can choose an Apple Wireless Keyboard and Apple wireless Mighty Mouse, which require the Bluetooth 2.0+EDR module.

- Apple Keyboard and Mighty Mouse – U.S. English
- Apple Keyboard and Mighty Mouse – Western Spanish
- Apple Wireless Keyboard and Apple wireless Mighty Mouse – U.S. English [Add $53]
- Apple Wireless Keyboard and Apple wireless Mighty Mouse – Western Spanish [Add $53]

Mac OS X language
Your Mac Pro typically ships with an operating system that matches the official language of the country in which you purchased it. However, you can also choose an operating system that displays information in a different language, if available in your country.

- Mac OS X – U.S. English
- Mac OS X – Western Spanish
Mac OS X Server v10.4
Apple now offers 100% native Mac OS X Server v10.4 as a preinstalled option, updating the Mac OS X v10.4 "Tiger" client to a full, server operating system. With Mac OS X Server v10.4, Apple has integrated popular open source software technologies and created innovative management tools to make it easy to provide powerful standards-based server solutions. Choose either the 10-Client license or Unlimited license of Apple's award-winning UNIX-based server operating system.

Apple Software
You can choose to have one of the following Apple software titles preinstalled and available for immediate use. You'll receive backup media with all the application data and an electronic version of the user's guide.

AppleCare Protection Plan (APP)
The AppleCare Protection Plan extends your computer's 90 days of complimentary support and one-year warranty to up to three years of world-class support.

Subtotal
Please note that your subtotal does not include sales tax or rebates.

$4,473.00

Add to cart
ProDowser v2.3

A DMX Controlled Projector and Light Source Shutter System

Pro-Dowser, DMX Projector Dowsing System

$225.00 + Shipping

Features

- Allows DMX512 protocol control of flag-type lens shutters.
- 200 millisecond close time through 45 degrees of travel.
- Mini DIP address switches address a full 512 channels.
- AC power adapter or battery operation.
- 3 pin Male and Female DMX signal connectors for daisy chain through connection.
- All black design virtually disappears in the dark.
- Optional Add-On units for multiple projectors on adjacent channels.
- Optional DMX Termination switch onboard device.

Ships With:

1- Dowser Unit
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<th>1- Power Supply</th>
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<tr>
<td>1- Flat Black Aluminum Flag</td>
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<tr>
<td>1- Hook &amp; Loop/PSA Mounting Kit</td>
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<tr>
<td>1- #0 Phillips Screwdriver (for flag adjustments)</td>
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Easy payment methods include PayPal or checks via Mail
**QUOTE**

**From:** Full Compass Systems, LTD  
**8001 Terrace Avenue**  
**Middleton WI 53562-3194**  
**608-831-7330**

**Bill:** Customer # 71810  
**COMPTROLLERS OFFICE**  
**PO BOX 5655**

**SHIP TO:**  
**COMPANY**
**PO BOX 5655**
**NATCHITOCHES LA 71497**  
**318-357-5716**

**QUOTE #:** 313955  
**Print Date:** 10/24/2007 09:45:37  
**Operator:** damon  
**Quote Date:** 10/24/2007

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<td>17.990</td>
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Subtotal 13853.46
Shipping 0.00
Insurance 0.00

* Taxable Amt 13853.46
* Tax NTX NO TAX 0.00
* Total 13853.46

Fein 39-1279698 All Sales Final.
Open the door to new possibilities.

The basic version of QLab packs a big punch—and it doesn't cost a dime. But for those who need more, we offer a series of powerful upgrades. You can customize QLab simply by selecting the appropriate licenses for your needs.

Each license unlocks a separate set of features. When you purchase a license, a personalized license file will be instantly generated and sent to the email address you provide during checkout. Simply double-click the file to activate the license. There are no USB dongles, no serial numbers to enter, no muss, and no fuss.

Tips Before You Buy:
- Try before you buy!
  You can install and try any cue using the integrated Update Manager.
- Make sure your spam software is set to allow emails from “support@figure53.com”

Enhanced Audio

$49

The Enhanced Audio license adds new capabilities to your existing Sound Cues and Fade Cues, and unlocks the Sound Group Cue. This license offers:

- Support for 16 independent output channels per Sound Cue, routed to as many as 32 physical output channels per device.
- Global channel patching for each output device.
- Global volume adjustments for each output device.
- Live Fade Cue previews, to hear and volume levels immediately when setting fades.
- Aggregate audio device support allows you to combine multiple physical devices into a single logical device.
- Custom channel names for each output device.
- Support for 16 output channels for each Fade Cue.
- Copy and paste Sound Cue volume levels to other Sound Cues.
- Copy and paste Fade Cue volume levels to other Fade Cues.
- Easily manipulate several Sound Cues as if they were a single multi-channel audio file, using the Sound Group Cue.
- Drag-and-drop rearrangement of audio input channels in Sound Group Cues.

Pro Video

$149

The Pro Video license unlocks the Video Cue and the Video Fade Cue, giving you access to all the following features:
Play full-screen video or still images on any attached display. (Up to eight separate displays.)
Display video or still images in a resizable window on any attached display.
Overlap multiple videos and still images, create picture-in-picture displays, and create custom backdrops.
Adjust rotation, scale, translation, and aspect ratio.
Control volume, transparency, start and end times, and looping properties.
Play back any media file that Quicktime supports, including video files, still image files, and even MIDI music files.
Adjust the transparency of videos and still images with the Video Fade Cue.

Pro MIDI

$149

The Pro MIDI license unlocks the MIDI Voice Cue, the MIDI Show Control Cue, and the remote MIDI control functionality, giving you access to all the following features:

Send all MIDI Voice messages.
Adjustable fades for Control Change, Key Pressure, Channel Pressure, and Pitch Bend MIDI messages.
Send all General MIDI Show Control Commands.
Send all Sound MIDI Show Control Commands.
Support for all MIDI Show Control timecode formats.
Control QLab remotely with MIDI Show Control messages or MIDI Voice messages.
Assign a MIDI Voice message to trigger any cue or cue list.
Support for 8 independent MIDI destination devices per workspace.

Pro Control

$19

The Pro Control license unlocks the control cues, giving you access to all the following features:

The Target Cue, for easy ramping and flow control.
The Pause Cue, to pause any running cue.
The Reset Cue, to reset any cue or cue list.
The Load Cue, for sophisticated pre-loading of cue sequences to any point in the timeline.
Fire any cue at a specific time of day, with the wall clock triggers.
Appendix C: Technical Specifications
Product Specifications

Echo Digital Audio is proud to use only specifications of production units. While other companies quote specs of their converters alone in laboratory settings, the numbers you see on this page represent the actual unit in your hands. Since people often rely heavily on specs when deciding what gear to buy, we like to bring you numbers that really mean something.

Analog Input

- 2 Neutrik Universal connectors for balanced TRS or XLR
- 6 Balanced TRS connectors
- Accepts unbalanced signals
- Frequency Response: 20Hz-20kHz, ±0.1dB
- Dynamic Range: 113dB A-weighted
- THD+n: <0.002% A-weighted

MIDI

- MIDI input
- MIDI output

Digital Sync

- Word Clock in/out
- S/PDIF in/out

Headphone Output

- High quality ¼" headphone jack
- Volume control on front panel

General
Nominal Input Level:
+4dBu or -10dBV
(software configurable)

48V Phantom power on XLR inputs

Analog Output

- 8 Balanced TRS connectors
- Frequency Response:
  10Hz-20kHz, ±0.1dB
- Dynamic Range: 114dB
  A-weighted
- THD+n: <0.002% A-weighted
- Nominal Output Level:
  +4dBu or -10dBV
  (software configurable)

On-board 32-bit / 1.6 gigaflop DSP:
  - Digital mixing
  - Near zero latency hardware monitoring

Dimensions

- 14 1/2"(w) x 5 1/2"(d) x 1 1/2"(h)
- Fits in a single rack mount space
- Includes rack mounting brackets

Host Interface

- 2 1394a (FireWire) ports

Mic Preamps

- We spec our "studio quality" mic pres at -128 dBu EIN (equivalent input noise) and spec the A/D inputs at 112 dB dynamic range and a THDN of less than .002%, both A-weighted.

General Converter Specs

- 128x Oversampling converters
- 24 bit data resolution maintained throughout signal path
- Multiple standard sampling rates supported: 32k, 44.1k, 48k, 88.2k, 96k

S/PDIF Digital Input/Output

- Up to 24 bit resolution
- Coaxial connector
- Consumer/Professional Switch
- Sample rates from 32kHz - 96kHz supported

Specifications subject to change without notice.

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Panasonic ideas for life

PT-D5700U
PT-D5700UL
DLP®-Based Projector

The 6,000-lm projector that's easy to see even in brightly lit rooms

6,000 lm
XGA
Further expanding reliability and picture quality

Panasonic’s DLP® system projectors have taken another step forward. Now they produce even better images while maintaining all of their highly reliable functions. Their 6,000-lm brightness delivers crisp, easy-to-see images even in brightly lit classrooms and meeting rooms, to make presentations easier to understand.

High power brightness
6,000 lm

DLP® Projector
PT-D5700U
PT-D5700UL

*Weights and models

High brightness and high picture quality

High-power 6,000-lm brightness

The PT-D5700U/D5700UL offer full 6,000 lumens of brightness, thanks to the newly developed AC lamp and more efficient reflectors and synthetic mirror. This enables crisp, sharp images even when projecting in a classroom, meeting room, or other location with ordinary daytime lighting.

System daylight view

The system daylight view function uses an image processing circuit to compensate for the loss of color saturation that occurs when light reflects onto the screen from bright surroundings. It is especially effective for producing crisp, sharp images in dark portions containing gradation. The function can be adjusted in three steps.
Projection of bright, high-quality images in large spaces such as halls, conference rooms, classrooms, control rooms, and churches.

**Vivid color control**
A unique control technology is used to maximize the color segment areas of the color wheel. Compared to conventional projectors, the brightness of each color is increased by an average of about 15%. This results in sharper, clearer color reproduction.

**Full 10-bit picture processing**
The use of a full 10-bit image processing system provides smooth, natural expression. For example, skin tones appear natural and true to life.

**Progressive cinema scan (3/2 Pulldown)**
This interface/progressive conversion technology automatically detects when the input signal is derived from film-based material and selects the optimal progressive processing method to assure faithful reproduction of the original image.

**New IP conversion circuit**
The PT-DW8700U/CS700U/L feature a new IP conversion circuit that produces more detailed images than our previous models.

**3D color management system**
Color management provides optimal levels of color saturation, hue, and brightness that were not possible with conventional projectors. Colors approach those of the original image, even on large-screen displays.

**Dynamic sharpness control**
The dynamic sharpness control circuit adjusts the video signal waveforms based on the difference in brightness of adjacent pixels for a sharp, clear picture that is relatively unaffected by signal noise.

**More effective noise reduction**
Images are noticeably cleaner, thanks to higher performance in the noise reduction, which lowers image graininess, and improved MPEG noise reduction, which suppresses the block noise and mosquito noise that are common in fast-action scenes.
Excellent reliability

Dual lamp system
The use of two lamp systems increases brightness and eliminates the need to interrupt a presentation if a lamp burns out in dual lamp operation mode.

Flexible system installation

Built-in multi-screen support system

Horizontal/Vertical lens shift
A wide adjustment range of the horizontal/vertical lens shift assures distortion-free images and adds convenience and versatility. (Horizontal: manual, Vertical: powered)

Web browser control/monitoring and e-mail message alert
Anybody can operate the PT-D5700UL/D5700UL by remote control or monitor its status over a LAN network, because it is all done using the computer's familiar Web browser. Furthermore, the PT-D5700UL/D5700UL sends an E-mail message to notify the operator when an error has occurred, or a lamp needs to be replaced.

Optional lenses for various venues
Five optional lenses with different throw distances are available in addition to the supplied lens. These powered zoom/focus lenses enable the projector to perform superbly in an array of projection environments.

Multiple terminals
The PT-D5700UL/D5700UL has an array of terminals-two RGB inputs including a 5-BNC connector, Serial inputs, three S-video inputs, two remote in, one remote out, DVI-D input and control capability-to support a broad range of projection needs. It is also possible to connect and control A/V and Crestron control systems with ease.

Lens-centered design
A lens-centered, symmetrical design provides flexible system layout, eliminating the need for any special considerations when planning the installation site.

Edge blending function
This function controls luminance at the edges where screens overlap. By eliminating unnatural screen joints, it produces uniformly attractive multi-screen displays.

Color matching function
The Color Matching function corrects the subtle variations in color reproduction between projectors. Originally developed "adjustment assist" software quickly and precisely optimizes images, so the color on each screen are uniformly reproduced.

Digital image enlarging
Images are enlarged up to 10 times (horizontally and vertically) without having to use any additional devices.

With edge blending
Without edge blending
Overlapping image edges
AC lamp
Newly developed AC lamps with full 300 watts of power offer excellent brightness and greater reliability than other types. A new lamp drive system also lowers the stress on the lamp electrodes while the lamps are lit. The new lamps have a lifetime of approximately 3,000 hours*, which is reassuring for applications where the projector is frequently used. The AC lamp minimizes color irregularities.

Liquid-cooling system
Panasonic's original liquid-cooling system directly cools the DLP® chip, which extends the PT-D5700U/D5700UL performance and maintains a high level of reliability. It also makes operation in temperatures up to 113°F/45°C possible with an automatic fan speed control, for a wider variety of environments, and maintains more stable performance even in harsh conditions while keeping the operating sound down to a quiet 29 dB*.

Micro cut filter
A filter in the air intake section traps dust particles that are 10 microns* or larger. By capturing approximately 9 times as much dust as conventional filters, it guards against optical blockages and reduces the penetration of dust into the interior to provide stable operation by, for example, preventing drops in brightness.

Dustproof design with sealed optical block
The effect of dust has been minimized by completely sealing the optical block. This dust-free design ensures that dust particles do not enter the projector, keeping it clean and extending service life.

PJLink™ compatibility
The LAN terminals support PJLink™ class 1 connection. Control with the same specifications is also possible when used in a multi-projector system with projectors of another brand.

Other valuable features
Mechanical lens shutter
A mechanical lens shutter minimizes annoying light leakage when the PT-D5700U/D5700UL is on standby or temporarily turned off, such as during a meeting.

Direct power off
Built-in capacitor provides power to cool the internal parts. This means that you can switch off the projector's main power as soon as the presentation ends. PT-D5700U/D5700UL doesn't make you wait around and helps minimize lamp damage.

Flexible angle setting
The PT-D5700U/D5700UL can be rotated vertically. This means you can install it at any angle, even when your choice of projector is fixed. The PT-D5700UL delivers the same performance as the PT-D5700U, but comes without lens. Combine it with an optional lens to get the exact performance you need according to usage and operating conditions.

Easy replacement of dust filter and lamp
Dust filter is replaced from the side and lamps are replaced from the back panel. Both of them are replaced very easily even when PT-D5700U/D5700UL is installed.

Flexible angle setting
The PT-D5700U/D5700UL can be rotated vertically. This means you can install it at any angle, even when your choice of projector is fixed. The PT-D5700UL delivers the same performance as the PT-D5700U, but comes without lens. Combine it with an optional lens to get the exact performance you need according to usage and operating conditions.

Control panel and wireless remote control
The rear control panel allows for easy operation when the PT-D5700U/D5700UL is set on a desk or floor. New wireless remote control with longer transmission capacity of 98 feet (30 m).

Easy lens replacement
The PT-D5700U/D5700UL uses the bayonet system, so lenses can be set and removed with one-touch ease.

Ecology-conscious design
Panasonic works from every angle to minimize environmental impact in the product design, production and delivery processes, and in the performance of the product during its life cycle. The PT-D5700U/D5700UL reflects the following ecological considerations:
- No halogenated flame retardants are used in the cabinet.
- The packaging is made with recycled paper.
- Lamp power switching reduces power consumption.
- Auto Power-Save activates standby mode when no signal is input.
**Specifications**

- **System:** DP1 Projection System
- **Device:** 0.7" DLP (Digital Light Processing)
- **Pixels:** 768 x 480 (4:3)
- **Lamp:** 150W UHP (Ultraviolet Holographic Projection Lamp)
- **Brightness (normal lamp):** 2,000 lumens
- **Contrast Ratio:** 1000:1
- **Resolution:** 768 x 480 pixels
- **Video:** NTSC

**Dimensions**

- **Width:** 162 mm
- **Height:** 142 mm
- **Depth:** 129 mm

**Optional accessories**

- **Replacement Lamp Unit:** ET-LAD57 (sold separately)
- **Zoom Lens:** ET-DLE100 (1.3:1 fixed)
- **Lens (ET-DLE150):** ET-DLE150 (1.3:1 fixed)
- **Ceiling Mount Bracket:** ET-PKD90

**NOTES ON USE**

1. Never place objects on top of the projector while it is operating.
2. Make sure there is an unobstructed space of 500 mm around the projector's exhaust openings.
3. Do not stack projectors on top of one another, as two units must be stacked for maximum use in a continuous run. Place them so that exhaust heat does not accumulate near the exhaust openings or around the units. Dual stacked projection of the PT-D5700U/PT-D5700U, is not recommended.
4. The projector is placed in a box or at a distance, since the temperature of the air surrounding the projector is between 0°C to 35°C and at a 40° from the projector, the exhaust openings are not blocked. Take particular care to ensure that hot air from the exhaust openings is not directed into the intake openings.

**Projector location**

<table>
<thead>
<tr>
<th>Screen size (inches)</th>
<th>Throw distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50&quot;</td>
<td>8.9</td>
</tr>
<tr>
<td>35&quot;</td>
<td>2.5</td>
</tr>
<tr>
<td>35&quot;</td>
<td>3.9</td>
</tr>
<tr>
<td>38&quot;</td>
<td>4.0</td>
</tr>
<tr>
<td>42&quot;</td>
<td>4.1</td>
</tr>
<tr>
<td>46&quot;</td>
<td>4.7</td>
</tr>
<tr>
<td>52&quot;</td>
<td>5.0</td>
</tr>
</tbody>
</table>

*Weights and dimensions shown are approximate. Specifications are subject to change without notice.*
### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply (rated)</strong></td>
<td>7.2 V DC</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>4.8 W (using viewfinder), 5.7 W (using LCD screen)</td>
</tr>
<tr>
<td><strong>Television System</strong></td>
<td>EIA standard (525 lines, 60 fields) NTSC color signal</td>
</tr>
<tr>
<td><strong>Video Recording system</strong></td>
<td>2 rotary heads, helical scanning system DV system (consumer digital VCR SD system); Digital component recording</td>
</tr>
<tr>
<td><strong>Audio Recording system</strong></td>
<td>PCM digital sound: 16-bit (48 kHz/2ch); 12-bit (32 kHz/4ch)</td>
</tr>
<tr>
<td><strong>Image Sensor</strong></td>
<td>3 CCD 1/4&quot; Pixel Shift (charged coupled device) 410,000 pixels (380,000 effective pixels)</td>
</tr>
<tr>
<td><strong>Tape Format</strong></td>
<td>Videocassettes bearing the MiniDV mark</td>
</tr>
<tr>
<td><strong>Tape Speed</strong></td>
<td>SP: 3/4 ips (18.81 mm/sec); LP: 1/2 ips (12.56 mm/sec)</td>
</tr>
<tr>
<td><strong>Maximum Recording Time (with an 80-min. cassette)</strong></td>
<td>SP: 80min; LP: 120 min</td>
</tr>
<tr>
<td><strong>Fast Forward/Rewind time</strong></td>
<td>2 min. 50 sec (with a 60 min cassette)</td>
</tr>
<tr>
<td><strong>Lens</strong></td>
<td>f/1.6 - 2.9, 20X POWER ZOOM, 4.2-84MM</td>
</tr>
<tr>
<td><strong>Focusing System</strong></td>
<td>TTL autofocus, manual focusing possible</td>
</tr>
<tr>
<td><strong>Minimum Focusing Distance</strong></td>
<td>Tele: 3.3 ft (1m); Wide: 0.39 in (1cm) on maximum wide angle</td>
</tr>
<tr>
<td><strong>Frame Rate</strong></td>
<td>1/15,000 sec.</td>
</tr>
<tr>
<td><strong>Minimum Illumination</strong></td>
<td>6 lx</td>
</tr>
<tr>
<td><strong>Recommended Illumination</strong></td>
<td>more than 100 lx</td>
</tr>
<tr>
<td><strong>Filter Diameter</strong></td>
<td>58mm</td>
</tr>
<tr>
<td><strong>Viewfinder</strong></td>
<td>0.44 in., color LCD (approx. 180,000 pixels)</td>
</tr>
<tr>
<td><strong>LCD Screen</strong></td>
<td>2.5 in. measured diagonally (6.4 cm), 200,000 pixels (approx.)</td>
</tr>
<tr>
<td><strong>Microphone</strong></td>
<td>Stereo electret condenser microphone</td>
</tr>
<tr>
<td><strong>DV Terminal</strong></td>
<td>Special 4-pin connector (based on IEE 1394)</td>
</tr>
<tr>
<td><strong>Video Terminal</strong></td>
<td>1 VP-p/ 75 (Y signal) ohms unbalanced</td>
</tr>
<tr>
<td><strong>S-video Terminal</strong></td>
<td>1Vp-p (Y signal), 0.286 Vp-p (C signal)</td>
</tr>
<tr>
<td><strong>Audio Terminal</strong></td>
<td>-10 dBV, less than 3 kohms, unbalanced</td>
</tr>
<tr>
<td><strong>Operating Temperature range</strong></td>
<td>32-104° F (0-40° C)</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th><strong>Dimensions</strong></th>
<th>4 5/8 x 5 3/8 x 12 in (118 x 136 x 306 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (not including lens and battery pack)</strong></td>
<td>2lb. 7 1/2 oz. (1.25 kg)</td>
</tr>
</tbody>
</table>

**Memory Card**
- MultiMediaCard, SD Memory Card

**Image Format**
- Design rule for Camera File System (DCF)

**Print Order format**
- Digital Print Order Format (DPOP)
October 25, 2007

To Whom It May Concern:

Please consider this a letter of support for the Student Technology Fee Grant Proposal from Mr. Scott Burrell and Mr. Robert Graham on behalf of the entire theatre program.

The Student Technology Grant Fund has been extremely generous to the School of Creative and Performing Arts in the past and we are extremely appreciative of this support. With this thought in mind, I hope you will give serious consideration to funding the requests that are in the current proposal from the NSU Theatre.

All three of the proposals are important to the continued growth and improvement of our theatre program and they will help ensure that we are able to continue to attract the finest students and to provide the highest quality of performances.

It is my pleasure that I support this application and I hope you will give it every consideration.

Sincerely,

Bill Brent
Director, School of Creative and Performing Arts
TO WHOM IT MAY CONCERN:

The Theatre and Dance department is submitting three projects to be funded through Student Technology Fee Grants. I concur with the need for the equipment and technology specified, and to the priority given the projects.

The first grant for consideration is for the renovation and upgrade of the Theatre Technology infrastructure for the Loft Theatre. By improving the theatrical lighting and sound systems, theatre students will have an improved facility to explore the various aspects of their training in a more laboratory-like setting. The addition and improvement of these systems will bring the Loft Theatre fully online as an operational studio theatre. By providing this additional performance space, which the department plans to be used for the student-produced Second Season, the students will have a space that is more appropriate for students to ‘experiment’ with the theories and methods they learn in class than the two larger theatre spaces. Additionally, this will create a more appropriate classroom/lab for the lighting and sound design curriculum, which will improve the quality of instruction in those courses. Also, the addition of a third ‘viable space’ in the theatre department will improve our ability to host outside events on a small scale, which we have not been capable of doing in the past. Student organizations will now have A.A. Fredericks Theatre (1300 seats), Theatre West (95 seats) and the Loft Theatre (50 seats) which could be used for meetings and events. This enhancement will not only improve the overall educational mission of the theatre program, but become a very attractive part of the department’s recruiting capability. Very few programs nationally have 3 fully operational venues, and fewer yet have a space that is entirely dedicated to student use, as the Loft would be.

The second grant to be considered is a projection system for the A. A. Fredericks Fine Arts Building theatre facilities. The selected equipment will allow students to record video, play back video and still image projections, and playback multichannel audio sound effects, during theatre productions. This system will give Northwestern students an opportunity to work with equipment being used in their professional field in experimental ways. Installing and using this equipment will also allow the Theatre to recruit more students in the Design and Technology concentration.

The third and final grant request is for an upgrade to the lighting control for A.A. Fredericks Auditorium to an ETC Congo Jr. Lighting Controller. The current lighting control system in Fredericks is and ETC Expression III lighting controller. In a past grant, the department received funding to add Intelligent/Robotic lighting fixtures for the facility. With the funding provided from that grant, the department was able to purchase 4 VariLite VL1000 light fixtures. This marked a vast leap forward in lighting technology. Unfortunately the control board, while capable of operating with these and other fixtures of this type, does not interface with the units in what would be considered an industry-normal manner, and forces students to learn non-standard programming techniques. By upgrading to a controller which is designed to interface correctly with these newer technologies, students will work with industry standard technologies and methods in their practical production and classroom work. Additionally, this would allow a ‘trickie down’ assignment of the controllers in Theatre West and the Loft, upgrading the control capabilities of those spaces at no additional cost. Having this technology available for student use improves a graduate’s strength as they enter into the job market, and strengthens the department’s ability to recruit students of design/technology, an area that the department would like to improve.

Thank you very much for your time and consideration of this grant proposal, and your continued support of the Northwestern Theatre & Dance program and the College of Liberal Arts.

Sincerely,

Steven G. Horton, Ph.D.
Dean
Associate Provost