SJSU Unidata Equipment Proposal, March 2011

Co-PIs: Drs. Alison Bridger & Marty Leach

B. Project Summary

This equipment request will allow us to: (1) upgrade our servers used to ingest, process, and forward data from the Unidata data stream; and (2) establish an electronic map wall at SJSU, allowing for a significant advance in our synoptic and other teaching capabilities.

SJSU has been an active participant in the Unidata community for over a decade. Our servers ingest data from the Unidata stream, and process the data both to forward on to users beyond SJSU, and to display on the department weather page (http://www.met.sjsu.edu/weather/weather.html). The data processing is performed by in-house servers which are now typically five years old. In part (1) of our proposal, we seek to replace our older servers with a new multi-core server in order to keep pace with technical and software developments in the last five years and anticipated over the next five years (multi-core processors, processing speed, RAM and storage requirements). Additionally, the new server will make use of new Unidata THREDDS/RAMADDA capabilities.

In part (2) of our proposal, we seek to purchase and install our first electronic weather map wall. SJSU also has a very strong teaching record and emphasis on synoptic and forecasting meteorology, especially at the undergraduate level. We propose a modest start, with a 4x2 array of monitors. The map wall will be used to display a variety of fields (radar, satellite imagery, surface obs, forecast maps etc.) at both synoptic and regional/mesoscale, and will be used in a wide array of classes, including the senior-level synoptic/forecasting classes (171A,B), the junior-level forecasting classes (170A,B), and the sophomore lab (60), as well as other classes (mesoscale, fire weather, remote sensing). The wall will also be used by students at all levels (including graduate) participating in the Weather Challenge, as well as by faculty and students in informal weather discussions.

SJSU is developing a fire weather research program under Dr. Craig Clements. The electronic map wall will be of great benefit to this group as a tool for both research and real-time applications in fire season. This group has developed two versions of the WRF model: one to produce real-time forecasts for the San Francisco Bay Area (SFBA), and one for fire weather applications. We will display results from both models online with an anticipated start date of 4/1/11. Both sets of simulations can be made available to the broader community using THREDDS/RAMADDA via the proposed new server.

C. Project Description

Our proposal concerns the acquisition of two hardware packages: **first**, a new server which will ingest, process, and distribute data from the Unidata stream making use of emerging THREDDS/RAMADDA capabilities; and **second**, hardware necessary to establish our first electronic weather map wall at SJSU. Each request is described below.

a) **New data server**

We currently ingest data using a server (*rossby*) which is roughly five years old. Some data processing is conducted by *rossby*, while other tasks (processing, map generation etc.) are farmed out to three other servers each also about five years old. We propose to replace *rossby* with a new server that will perform these functions, and allow for a significant expansion of capabilities over the next five years. We plan to purchase and install a 12-core server which will allow the following processes to run efficiently and essentially simultaneously: data download and ingest from the Unidata stream; data processing and archival; forwarding to our web page; forwarding off-campus to external users; data upload of in-house generated products and case studies; multiple student access of products in real time for classwork. The new server will allow us to download and upload data using new THREDDS/ RAMADDA capabilities as outlined below.

As mentioned, our current servers (*rossby* etc.) which ingest data via the IDD system are about five years old (some older). Our synoptic teaching lab includes 12 workstations for student use in analysis and forecasting classes, discussions etc. In 2010 we were able to upgrade these student workstations, but not the servers "behind the scenes". Currently both the Unidata Integrated Data Viewer (IDV) and GEMPACK are used to generate products for our analysis and forecasting courses, as well as our web page. In purchasing a server on which both THREDDS and RAMADDA will also be installed, we expect to use IDV and GEMPAK more extensively in these forecasting courses. There will also be a natural application of the technology in a wide range of other courses, including Numerical Weather Prediction, Climate Modeling, and Statistical Meteorology, where convenient and fast access to various models and datasets facilitates the educational process.

In our undergraduate program, we have historically placed a strong emphasis on weather analysis and forecasting. In their senior year, students take two three-unit Analysis and Forecasting classes (METR 171A,B), a Mesoscale class (172), a Remote Sensing class (155), and elective classes in which Unidata products will be used. Seniors also conduct a senior thesis research project, and several students choose topics for which these facilities are used (e.g., case studies). Prior to their senior year, students take two one-unit Analysis and Forecasting classes (170A,B), and all students (including graduates) are invited to participate in The Weather Challenge forecast contest, for which our data ingest/processing/display capabilities are key (SJSU has had 1st place finishes in both team and individual categories).

Within the last year we have renamed ourselves the Department of Meteorology and Climate Science, and introduced a new concentration in Climate Science. Some of the classes associated with this new concentration (e.g., Global Climate Modeling) will strongly benefit from enhanced access to climate data. This especially includes access to large datasets from climate simulations. This capability will be enhanced by the acquisition of a new THREDDS/RAMADDA server.

Under the leadership of Assistant Professor Craig Clements, a new Fire Weather research group has been formed at SJSU, and we anticipate that they will be significant

users of our upgraded capabilities. Anticipated uses of the electronic map wall are discussed below. In addition, the group has developed two versions of the WRF model: one producing real-time forecasts for the SFBA, the other for real time fire weather products and applications. The group plans to display results from both models online starting on 4/1/11. We anticipate that results from both sets of simulations can be made available to the broader community using the THREDDS and RAMADDA systems. In particular, we expect to generate and provide case studies of particular wildland fires, including meteorological conditions, measurements, and simulations.

In addition to our in-house data use, we serve clients beyond our university community, including other universities, government institutions and private industry. We are a primary feed for the Naval Research Laboratory in Monterey, CA; the University of Alaska, Fairbanks, School of Fisheries and Ocean Sciences; and Pacific Gas and Electric in Northern California. We provide backup service to the University of Arizona, Stanford University, the Naval Post Graduate School in Monterey and Fleet Numerical Meteorology and Oceanography Center, also in Monterey. We expect to continue to provide products to the community, and the new server and its expanded capabilities will be important in allowing us to do this.

The THREDDS and RAMADDA middleware packages developed by Unidata will greatly facilitate all aspects of data ingest/manipulation/display/sharing in all teaching, research and applied functions in which SJSU is engaged. The new server is requested in order to fully realize these capabilities.

b) **Electronic Map Wall**

We also propose to create an electronic weather map wall, the first at SJSU. The proposed map wall will consist of 8 monitors (in a 2x4 configuration). Each pair of monitors will be "driven" by a low-end CPU, and the four low-end CPUs will be "driven" by a new server tasked with data ingest and processing from the Unidata stream and dedicated to the map wall. The map wall will be able to display both real time and archival datasets, depending on individual user needs. The main server requested, with dual six-core Xeon processors, will allow for an expansion of the system in the coming years.

The establishment of the map wall is a critical component of this proposal. Our current display capabilities are outdated. Of the 12 workstations in the synoptic/ forecasting lab, only one is configured for projection, and thus we can only display one product at a time. The requested map wall package (monitors, CPUs and dedicated server) will modernize our facility and maintain our competitiveness in educating future forecasters and earth system scientists.

Classes in which the map wall will be used were listed above in connection with the requested new data server. Potentially, a significant number of our majors classes can make use of the electronic map wall to allow students to better visualize atmospheric behavior, especially at the beginning level. There are also potential research and applied uses of the map wall. For example, during the California fire season professor Clements' Fire Weather group can use the map wall for planning and coordination of measurement campaigns. This could involve external groups such as CAL-FIRE, with whom Dr.

Clements is working. As mentioned, the group has started creating real-time simulations over Northern California using the WRF model. The electronic map wall will enable us to display these WRF results as well as suitable imagery and synoptic products.

One of us (AB) has recently worked with a graduate student on the analysis of atmospheric data from the Mars Global Surveyor spacecraft. The student made use of the NASA-Ames hyperwall (http://people.nas.nasa.gov/~creon/hyperwall/abstract.pdf) which is a research version of the map wall proposed here. The hyperwall was invaluable in displaying large quantities of data simultaneously, and we anticipate that the SJSU map wall can serve a similar purpose when not being used in classes. This may have particular benefit for the field of climate science. An obvious example will be the ability to display the evolution of fields from multiple simulations by multiple models for multiple scenarios etc. (currently the CMIP3 suite; soon to be CMIP5).

In summary, the installation of the proposed electronic map wall will allow a significant enhancement of the teaching environment in our synoptic analysis and forecasting classes, as well as new opportunities in near real-time activities such as planning for fire weather measurement campaigns, and finally for our research activities.

D. Budget

Our equipment proposal consists of two parts: (1) replacing our existing IDD server; and (2) creating an electronic map wall. The proposed THREDDS server will be a high-end multi-core machine with large storage capacity and high RAM. The proposed electronic map wall consists of eight 24 inch LCD HD monitors. Each pair of monitors will be driven by a low-end mini-tower CPU, and the map wall system will be driven by a new multi-core server. The equipment breakdown is as follows:

ITEM/SPECS	ITEM COST	LINE ITEM COST	TOTAL COST
Electronic map wall system			
Eight Samsung 32" LED-LCD HDTV 720p monitors (via bestbuy.com)	8 @ $500.- $500. is the current price at bestbuy.com	$4,000.-	$4,000.-
Four mini-tower CPUs (e.g., Dell Optiplex 780), each with the following specs: Intel 9660 Core2 Quad CPUs, 8GB RAM, 256MB nVidia GeForce 9300, 250MB SATA Hard Drive	4 @ $639.- copy of estimate attached:	$2,556.-	$6,556.-
One DELL Precision T5500 dual 6-core Intel Xeon 2.66 GHz processors; 6 GB RAM	$3,845.25 copy of estimate attached	$3,845.25	$10,401.25
One UPS box (APC model 2200VA, 11 outlets)	$1,276.- @bestbuy.com	$1,276.-	$11,677.25
Electronic map wall system total cost			**$11,677.25**
Data server			
One DELL PowerEdge T610 dual 6-core Intel Xeon 2.66 GHz processors; 16 GB RAM ; chassis can hold 8 hard drives for storage- bid has 6 1-TB storage drives; 2 OS drives	$6,074.25 copy of estimate attached	$6,074.25	$6,074.25
Data server total cost			**$6,074.25**
Total requested			**$17,751.50**
Tax (currently 9.25%)			**$1,642.-**
Shipping charges Free shipping from Dell to educational sites; budget $50 shipping per monitor from BestBuy	$400.	$400.0	**$400.-**
Grand total			**$19,793.50**

Cost Sharing: The Department of Meteorology and Climate Science will provide funding for the installation of the software and hardware (cables, racks, additional power etc.) up to $2,000.

E. Project Milestones

Assuming funding awarded on June 1, 2011:

a) June 1-15: re-compute bids to allow for cost changes and hardware improvements between the dates of proposal submission and award (applies to all servers plus the HD display monitors); order all equipment. We have attached bids for the two main servers and for the smaller CPUs from dell.com.

b) July 15 - October 15: **for the upgraded server project**, install server in parallel with current servers; install and test data access, processing and display software (IDD, IDV, GEMPACK, THREDDS, RAMADDA) and configure the new server to replicate the current functions of the old servers (*rossby* etc.) Take *rossby* etc. offline when this stage is complete. We can then begin to access new THREDDS etc. capabilities in various classes.

   Personnel from the department and from the College of Science network support group will install the hardware and software, and will provide maintenance once it is operational. The department is currently recruiting to hire a tenure-track faculty member in the area of synoptic/forecasting meteorology, and we expect that he/she will actively participate in this process.

c) July 15 - November 15: **for the map wall project**, install the new server that will access and process data; install and test data access software (IDD, IDV, GEMPACK etc.); test the map wall function first with one pair of monitors and one CPU connected to this server; replicate with multiple monitors.

d) November 15 - December 15: **for the map wall project**, physically install monitors; run cables (and addition power if needed) within campus specs. Dedicate new map wall!

e) We anticipate that all hardware can be installed and running by 12/31/11, and that the map wall will be ready for use in classes in the Spring 2012 semester. Implementation of all THREDDS and RAMADDA functions will be an ongoing process once the new server is up and running.

Print Summary

PowerEdge T610

Price $8,099.00

Instant Savings $2,024.75

Price **$6,074.25**

Preliminary Ship Date: **3/30/2011**

My Selections | All Options

● **PowerEdge T610**

Date	3/14/2011 6:15:52 PM Central Standard Time
Catalog Number	25 Retail rc961399

Catalog Number / Description	Product Code	Qty	SKU	Id
PowerEdge T610: Tower Chassis for Up to 8, 3.5" Hard Drives	T61WT3	1	[224-8474]	1
Shipping: PowerEdge T610 Shipping	SHIPGRP	1	[330-4119]	2
Primary Processor: Intel® Xeon® X5650, 2.66Ghz, 12M Cache,Turbo, HT, 1333MHz Max Mem	X5650	1	[317-4109]	6
Memory: 16GB Memory (8x2GB), 1333MHz Single Ranked UDIMMs for 2 Procs, Advanced ECC	6GU2AE	1	[317-0266] [317-0266] [317-0266] [317-0266] [317-7393]	3
Additional Processor: Intel® Xeon® X5650, 2.66Ghz, 12M Cache,Turbo, HT, 1333MHz Max Mem	2X5650	1	[317-0265] [317-4121]	7
Operating System: No Operating System	NOOS	1	[420-6320]	11
Internal Controller: PERC 6/i SAS RAID Controller, 2x4 Connectors, Internal, PCIe, 256MB Cache	PERC6I	1	[341-8785]	9
Hard Drive Configuration: RAID 0 for H700, PERC 6/i, H200 or SAS 6/iR Controllers	MSR0	1	[341-8775]	27
Hard Drives: 1TB 7.2K RPM SATA 3.5" Hot Plug Hard Drive	1TS3	6	[341-8730]	1209
Power Supply: High Output Power Supply, Redundant, 870W	RDPSUHO	1	[330-3549]	36

Power Cords: NEMA 5-15P to C13 Wall Plug, 125 Volt, 15 AMP, 10 Feet (3m), Power Cord	125V10F	1	[310-8509]	106
Embedded Management: iDRAC6 Express	IDRCEX	1	[467-8649]	14
Network Adapter: Broadcom 5709 Dual Port 1GbE NIC w/TOE iSCSI, PCIe-4	B5709I	1	[430-3260]	13
Rails: Tower Chassis, No Rails Required	TOWER	1	[330-4120]	28
Internal Optical Drive: DVD-ROM, SATA, Internal	DVD	1	[313-9100] [330-4219]	16
System Documentation: Electronic System Doc, OpenManage DVD Kit with Dell Management Console	EDOCSD	1	[330-3554] [330-5280]	21
1st Hard Drive: HD Multi-Select	HDMULTI	1	[341-4158]	8
Power Cords: No Additional Power Cord	NOPWRCD	1	[310-9057]	38
Feature Upgrades for Embedded NIC Ports: Embedded Broadcom® NetXtreme II 5709 Gigabit Ethernet NIC	OBNIC	1	[430-1764]	5
BIOS Setting: Power Saving BIOS Setting	ESBIOS	1	[330-3491]	10
Hardware Support Services: 3 Year ProSupport and NBD On-site Service	U3IP	1	[989-3439] [992-7872] [992-7912] [993-1910] [993-8337] [993-8338]	29
Installation Services: No Installation	NOINSTL	1	[900-9997]	32

Print

View/Print Cart

🖶 Print Page

San Jose State University

E-quote Number: 1010982010272

E-quote Name	met mini me	**E-Quote Description**	met mini me
Saved By:	Cathy Kozak	**Phone Number:**	(408) 924-5195
	ckozak@email.sjsu.edu	**Purchasing Agent:**	
Saved On:	Monday, March 14, 2011	**Notes/Comments:**	
Expires On:	Thursday, April 28, 2011	**Additional Comments:**	
Premier Page Name	San Jose State University		

Description

Dell Precision T5500 64bit Dual Processor

Date & Time: March 14, 2011 11:44 PM CST

SYSTEM COMPONENTS

Dell Precision T5500 64bit Dual Processor	Qty	1
Dell Precision T5500 Workstation, EStar, Genuine Windows® 7 Professional, No Media, 64-bit, English	Unit Price	$3,845.25

Catalog Number: 25 E1763_64_2

Module	Description	Show Details
Dell Precision T5500	Dell Precision T5500 Workstation, EStar	
Operating System	Genuine Windows® 7 Professional, No Media, 64-bit, English	
Processor	Dual Six Core Intel® Xeon® Processor X5650, 2.66GHz,12M L3, 6.4GT/s, turbo	
Memory	6GB, DDR3 RDIMM Memory, 1333MHz, ECC (6 DIMMS)	
Keyboard	No Keyboard Option	
Monitor	No Monitor	
Graphics	256MB ATI FireMV® 2260, 2MON, 2 DP w/ 1 DP to DVI Adapter	
Boot Hard Drive	250GB SATA 3.0Gb/s with NCQ and 8MB DataBurst Cache™	
Hard Drive Configuration	C1 All SATA or SSD drives, Non-RAID, 1 drive total configuration	
Floppy Drive and Media Card Reader Options	No Floppy Drive and No Media Card Reader	
Mouse	No Mouse Option	
Chassis Configuration and 1394	Mini-Tower Chassis Configuration	
Optical Devices	16X DVD-ROM with Cyberlink Power DVD™ No Media	

Speakers	No Speaker option
Power Supplies	Precision T5500 Power Supply, C2 Motherboard
Documentation	Documentation, English, with 125V Power Cord
Hard Drive Internal Controller Option	Integrated Intel chipset SATA 3.0Gb/s controller
Resource DVD	No Resource DVD
Hardware Support Services	3 Year Basic Limited Warranty and 3 Year NBD Onsite Service
Ship Packaging Options	Shipping Material for System
System Recovery	Dell Back-up and Recovery Manager for Windows 7
Chassis Intrusion switch	Chassis Intrusion Switch
Quick Reference Guide	Quick Reference Guide, English, Dell Precision T7500
	TOTAL: $3,845.25

	Total Price
Sub-total	$3,845.25
Shipping & Handling	$0.00
Tax*	$336.05
*Exemptions reflected in final checkout page only	
Total Price[1]	$4,181.30

Large Text

United States   Buy Online or Call 1-877-220-3355   Sign In   Cart

Dell   Shop   Support   Community   Keyword or E-Value Code Search

Deals ˅   Laptops & ˅   Desktops & ˅   Servers & ˅   Printers ˅   Electronics & ˅   Mobile Phones ˅   Services ˅   Solutions ˅   View ˅
           Netbooks   Workstations   Storage   & Ink   Accessories   & Tablets   All

Small & Medium Business   Windows®. Life without Walls™. Dell recommends Windows 7.

Help Me Choose   *Advice on selecting the right components for your Dell Desktop or Laptop*

                                                                                          (intel)

                                                                          New!
① Customize   ② Accessories   ③ Recommended Add-ons & Services   ④ Review & Add to Cart   Instant Help   Chat Now
                                                                          via Screen Share

Print Summary   (+ Add to Cart)   **OptiPlex 780 Small Form Factor**

✓ **REVIEW YOUR SUMMARY** | Starting Price | $1,012.00 |
                                                                   | Instant Savings | $373.00 |
Congratulations! You have finished personalizing!
We have some recommendations for you highlighted in green below. | Subtotal | $639.00 |

                                                                   FREE professional operating system upgrade available when you customize this system!

My System Details   As low as $16.00/mo.

BASE	OptiPlex 780 Small Form Factor for Standard PSU	edit
OPERATING SYSTEM	Genuine Windows® 7 Home Premium, No Media, 32-bit, English	edit
PROCESSOR	Intel® Pentium® Dual Core Processor E5800 (3.2GHz,2M,800Hz FSB)	edit
OFFICE SOFTWARE	Microsoft Office Starter: reduced functionality Word and Excel with ads. No PowerPoint or Outlook	edit
SERVICES & WARRANTY	3 Year Basic Limited Warranty and NBD On-Site Service	edit
MEMORY	4GB DDR3 Non-ECC SDRAM	edit
MONITOR	No Monitor	edit
HARD DRIVE	250GB 7,200 RPM SATA 3.0Gb/s Hard Drive with NCQ and 8MB Cache	edit
VIDEO CARD	256MB NVIDIA GeForce 315 (DVI/VGA/TV-out), Low Profile	edit
OPTICAL DRIVE	8X Slimline DVD+/-RW with Cyberlink Power DVD™ No Media	edit
SPEAKERS	No Speaker, OptiPlex	edit
KEYBOARD	Dell USB Entry Keyboard	edit
MOUSE	Dell USB 2-Button Laser Mouse	edit
HARD DRIVE CONFIGURATION	No RAID	edit

Dell Business Credit | Apply
Discount Details
Preliminary Ship Date: 3/21/2011

ESSENTIAL ADD-ONS

APC BR1000G Back-UPS Pro 1000 VA 120V Power-Saving UPS System
$159.99

Add to system

Dell WM311 3-Button Wireless Mouse
$29.99

▸ Important Product and Service Details

Small & Medium Business

Shop	Support	Community	Company Information	My Account
Why Buy Dell?	All Support Options	Join the Discussion	About Dell	Sign-in / Register
Laptops & Netbooks	Drivers and Downloads	Share Your Ideas	Corporate Responsibility	Order Status
Desktops & Workstations	Order Status	Read our Blog	Careers	Make a Payment
Servers, Storage & Networking	Getting Started	Ratings & Reviews	Investors	
Printers & Ink	Product Support	Community Home	Newsroom	
Electronics & Accessories	Parts & Upgrades			

Laptops | Desktops | Business Laptops | Business Desktops | Workstations | Servers | Storage | Services | Monitors | Printers | LCD TVs | Electronics   Large Text

© 2011 Dell | About Dell | Regulatory Compliance | Terms of Sale | Unresolved Issues | Privacy | About Our Ads and Emails | Dell Recycling | Contact | Site Map | Visit ID | Feedback | Screen Share

snFG03

[+]
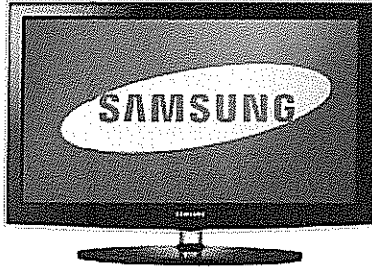
Samsung - 32" Class / 720p / 60Hz / LED-LCD HDTV

Model: UN32C4000 | SKU: 1093581

Customer Reviews: ⭐⭐⭐⭐⭐ **4.3** Read reviews (28)

Shipping: Usually leaves our warehouse in 1 business day
Estimate Arrival Time

Reg. Price:	$649.99
You Save:	$150.00
Sale:	**$499.99**

Store Pickup: Check Stores

Special Offers:

On Sale

50% Off Geek Squad Service: See How

Financing:

24 Month Financing

18 Month Financing

6 Month Financing

Protect Your Product

☐ 2-Year Protection Plan
   $59.99

☐ 4-Year Protection Plan
   $89.99

Buy Back Program HOW-TO
Calculate Value

☐ 4-Year Buy Back Plan
   $39.99

INCLUDE PLAN

Overview   Specifications   Accessories   Customer Reviews   Research

Customer Rating

⭐⭐⭐⭐⭐ **4.3**

Read reviews (28)
Write a review

Share this product: 🔲 ✉

. . . .

Overall Samsung.com Rating

⭐⭐⭐⭐⭐ **4.7**

Read reviews from Samsung.com customers 🖳 (20)

ENERGY STAR Qualified

This HDTV features Wide Color Enhancer Plus technology that delivers brilliant colors for detailed images when watching your favorite TV shows, movies or sporting events. Two 10W speakers with Dolby Digital and DTS decoders provide a lush soundscape.

Have questions about this product?

Q: Ask Mr. Samsung, fellow shoppers and Best Buy staff. Share your answers.

Product Q&A
22 Questions
40 Answers
Ask. Answer. Learn.

What's Included

- Samsung 32" Class / 720p / 60Hz / LED-LCD HDTV
- Stand
- Owner's manual

Product Features

- **31-1/2" screen measured diagonally from corner to corner**
  For optimal viewing in medium-size rooms.
- **Ultraslim design (1-1/4" deep)**
  Ideal for wall mounting (with optional mounting kit, not included). 200 x 200 VESA compatible.
- **Wide Color Enhancer Plus**

Product images, including color, may differ from Delivers brilliant colors for detailed images.

- **Incredible contrast ratio (2,000,000:1)**
  For an arresting viewing experience.
- **720p support**
  For stunning image clarity.
- **Two 10W speakers**
  With Dolby Digital and DTS decoders and DNSe for a lush soundscape. Supports multichannel sound (MTS) and second audio program (SAP) with 181-channel capacity.
- **Inputs**
  Include 4 HDMI with Anynet+ (rear), 1 component video (rear) and 1 PC (rear).
- **Outputs**
  Include 1 optical audio (rear).
- **4 HDMI inputs**
  HDMI cable not included. High-speed HDMI cable is the only connection that can deliver a full HDTV experience with a full 1080p picture and digital surround sound.
- **PC video input**
  Lets you connect your computer to experience high-resolution images.
- **USB 2.0 port**
  For quick connection of a digital camera or other USB device.
- **ConnectShare Movie**
  For connecting a thumb drive or digital camera to your HDTV. The user-friendly interface allows you to access videos, music playlists and pictures via the remote.
- **Game mode**
  Enhances dark areas, sharpens the picture, speeds up the image processing response and enhances audio for an intense gaming experience.
- **Touch of Color design**
  Provides a stylish look.

Warranty Terms - Parts	1 year
Warranty Terms - Labor	1 year
Product Width	30-1/2"
Product Weight	20.3 lbs. with stand (18.5 lbs. without)
Mount Bracket/VESA Pattern	200mm x 200mm
TV Type	LED-LCD Flat-Panel
Screen Size Class	32"
Screen Size (Measured Diagonally)	31-1/2"
Vertical Resolution	720p
Screen Refresh Rate	60Hz
Internet Connectable	No
PC Inputs	1
USB Port	Yes
Media Card Slot	No
HDMI Inputs	4
DVI Inputs	0
Component Video Inputs	1
Composite Inputs	0
Audio Outputs	1
Speaker Output Power	20W
Speakers	2
ENERGY STAR Qualified	Yes
V-Chip	Yes
Power Consumption (watts) Power On	50.9
Power Consumption (watts) Stand-by	0.1
Watts/Channel	

[+]
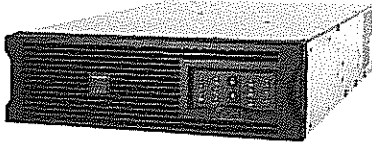
APC - Smart-UPS 2200VA Battery Back-Up System

Model: SUA2200RMXL3U | SKU: 9777557

Customer Reviews: ⭐⭐⭐⭐⭐ Be the first to write a review.

Shipping: Usually ships in 2-5 business days
Estimate Arrival Time

Our Price: **$1,275.99**

Store Pickup: Not Available

Financing:
18 Month Financing
6 Month Financing

Overview   Specifications   Customer Reviews   Research

Share this product:

Protect critical data and equipment with this battery back-up system that features 2200VA of power and an 880-joule rating to guard against power surges, spikes, lightning and more.

What's Included

- APC Smart-UPS 2200VA Battery Back-Up System
- USB cable, RS-232 cable, software CD-ROM
- Rack mounting support rails
- Owner's manual

Product Features

- **From our expanded online assortment; not available in all Best Buy stores**
- **Pure sinewave battery backup**
  Prevents interruptions, lost presets, missed DVR recordings, lost multimedia server data and premature projector bulb wear and tear when the power goes out.
- **880-joule rating**
  Absorbs a high quantity of energy for enhanced performance.
- **2200VA capacity**
  Along with automatic voltage regulation for safe system shutdown when power is lost.
- **Eleven 120V outlets**
  Protect critical data and equipment.
- **Field-replaceable power distribution panel**
  Ensures compatibility with equipment of various plug types.
- **Intelligent battery management**
  Maximizes battery performance, battery life and reliability through precise charging.
- **Temperature-compensated battery charging**
  Prolongs battery life by regulating the charge voltage according to battery temperature.
- **Automatic battery self-test**
  Ensures early detection of a battery that needs to be replaced. External replace battery LED indicator lets you know when the battery needs to be replaced.
- **Disconnected battery notification**

Product images when a battery is not available to provide backup power.

- **Automatic restart of loads after UPS shutdown**
  Automatically starts up connected equipment upon the return of utility power.
- **Power conditioning**
  Protects connected loads from surges, spikes, lightning and other power disturbances.
- **8' cord**
  Allows flexible room placement.
- **Plug-and-play installation**
  For simple setup.
- APC $150,000 equipment protection policy.

Warranty Terms - Parts	2 years
Warranty Terms - Labor	2 years
Product Height	5.25"
Product Width	19"
Product Weight	131 lbs.
Product Depth	26"
Number of Outlets	11
Joules	880
Length of Cord	8'
VA Rating	2200
Rechargeable	Yes
Equipment Protection Warranty	$150,000

Overall Rating

Share this product:

Featured Guides

- Prepare your PC for storm season
- Benefits of UPS PC Protection
- Learn about Intel's New Processor Numbers

Ads by Google