Remote Collaborative Geoscience Learning through Distributed File Servers and Dedicated Web Server System

March 24, 2021

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Requested Amount: $18,679.58

1. **Project Summary**:

The primary goal of this project is to build a collaborative Geosciences learning environment among several Geoscience-related programs including, but not limited to, Geo-Environmental Studies, Science Education in Earth Science, and Computer Science at the University of North Carolina at Pembroke (UNC Pembroke) and the undergraduate and graduate programs of Geography and Earth Sciences at the University of North Carolina at Charlotte (UNC Charlotte) to attract and motivate students, particularly those underrepresented minorities from the Lumbee Tribe Communities, to further their studies in geosciences and, more importantly, to diversify the geoscience community and make the field of geoscience more equitable. UNC Charlotte, a fast-growing research-oriented university, has a Department of Geography and Earth Sciences with over five undergraduate majors, two master programs, and a doctoral program. Unlike UNC Charlotte, UNC Pembroke has a smaller student population and offers undergraduate degrees in Geosciences and an MA Degree in comprehensive science for science teachers. This collaboration between the two universities will allow undergraduates from UNC Pembroke to have insight into a broad range of the advanced topics and projects of the graduate school of UNC Charlotte while the graduate students could use their knowledge to help the undergraduates.

The PIs have envisioned a plan to achieve the primary goal to enrich their curriculums with the Unidata data visualization, data mining software, and datasets by installing the Unidata IDV to UNC Pembroke's existing computer labs as well as to provide fast data access to class and research activities by setting up internal network file storage servers in the computing labs. Further, by installing a Linux public web server, the students of Geosciences-related majors at UNCPembroke will be able to share and learn the IDV bundles of advanced course activities of the graduate students of Geography and Earth Science majors at UNC Charlotte through a selection of related classes, where the remote collaborations of students through presentations and discussions among the two universities will be supplemented by video conferencing platforms such as WebEX or Zoom. Furthermore, the sharing of the IDV bundles with its related course activity designs will benefit the community for the learning purpose of Geoscience data visualization, application, and data mining.

Adding file storage servers to the internal network for the computer labs will enhance the capacities of the two universities to utilize a wide range of datasets from Unidata as well as locally generated datasets for our classes. Faculty will be able to download, compare, and select desirable Unidata datasets for their related courses; students will be able to use the pre-loaded Unidata datasets to perform class assignments by using the Unidata visualization tools with faster speed and to learn, for example, the NetCDF dataset format for the purpose of data

mining. Also, it is anticipated that students will use the computing infrastructure in capstone projects. Moreover, the system will enhance the research capabilities of the undergraduate program of UNCPembroke and the undergraduate and graduate program of UNCCharlotte along with faculty productivity.

The proposed distributed remote collaborative learning system will enhance the learning environment for the geoscience related programs of both UNC Pembroke and UNC Charlotte. If this proposal is funded, we expect to

- Facilitate student training and development with IDV.
- Integrate UNIDATA infrastructure into our program curriculums.
- Support remote collaboration among the undergraduates at UNC Pembroke and undergraduate and graduates at UNC Charlotte through the TDS (or RAMADDA) server.
- Provide a fast operational test bed for the IDV software and for the student-led development of training materials, with the intention of sharing results with the community.
- Provide students with resource-intensive data visualization and data mining in classroom and research activities.
- Enhance our community outreach within the Greater Charlotte area and the Lumbee Tribe community, NC.

2. **Project Description**:

a. Background and Goals

UNC Pembroke, a state-designated historically American Indian university, offers undergraduate degrees in Geo-Environmental Sciences and graduate degrees of Science Education in Earth Science. UNC Pembroke faculty are interested in transitioning from traditional lecture-based to data-based and applied teaching models. Students benefit in learning Geoscience by visualization of complex dataset using Unidata software in related courses. Unidata provides enormous data sources and complex analysis tools for real-time data analysis. Such actions may take longer time to access data for class activities inside the classroom preventing students' interaction with faculty in the classroom itself. UNC Pembroke students will benefit by being exposed to more advanced projects to motivate them to further their study in graduate programs in geoscience. More so, the proposed equipment will benefit computer science major students by learning the NetCDF datasets for data mining in Geoscience.

UNC Charlotte is the largest urban research university in North Carolina. The Department of Geography and Earth Sciences at UNC Charlotte hosts a group of faculty (34 full-time currently) and students with interdisciplinary backgrounds related to the study of geography, geology, hydrology, meteorology, and soil science. The Department houses the following undergraduate and graduate programs: Geography, Earth Sciences, and Geology and Meteorology with contribution to two interdisciplinary graduate programs, including Infrastructure and Environmental Systems, and Public Policy. The Department has a focus on five interdisciplinary themes, including global change, sustainability, human environmental interaction, hazards, and geospatial perspective. Thus, UNC Charlotte faculty have intensive interest in using Unidata in their teaching and research agendas. In particular, faculty from Geographic Information Science, geology, and meteorology will receive long-term benefits from this Unidata collaborative effort.

This proposal is aimed to install a public web server and two local file servers to share the Unidata IDV bundles and datasets to support fast access of data for class and research activities of Geoscience visualization and data mining among the two universities. The Unidata project manager, Mr. Jeff Weber, recommended TDS and RAMADDA for the proposed public web server and would assist the PIs to compare those two choices of Unidata server packages in terms of installation and performance for the above purpose, if the project is funded. The computer lab in the Department of Mathematics and Computer Science at UNC Pembroke has been recently upgraded with four large display screens on the front and back walls and 25 workstations in a fast wired network, while the servers will be installed onto such network and therefore provide fast access to the other computer workstations in the labs.

The servers at UNC Charlotte will be installed and maintained by the Center for Applied Geographic Information Science (CAGIS; https://gis.uncc.edu) with support from OneIT at UNC Charlotte. CAGIS at UNC Charlotte is a research center that focuses on using concepts and technologies in Geographic Information Science (GIScience) to address spatial dimensions of environmental and socio-economic problems. Dr. Wenwu Tang (co-PI) serves as the executive director of the Center, with support from the Director of Research and Outreach (Dr. Douglas Shoemaker) and IT support staff (Elie Saliba, shared with the Department of Geography and Earth Sciences). The facility has a well-equipped computational laboratory specializing in technologies for spatial analysis and GeoComputation, mathematical modeling, and remote sensing of the environment. The Center's computational lab hosts 16 Dell computers (Intel i7 Quad-core processors, 8GB RAM) and 24"+ HD LCD monitors. Intensive computational tasks are handled by a 320-Core Windows-based cluster (Sapphire), a 40-Core Linux-based virtualization cluster (Topaz), and multiple large-memory workstations (Diamond; with 256GB Memory, and 4TB disk space, Onyx: with 64GB Memory). The center also hosts advanced GPU servers (quad-

core Intel Xeon, 64GB Memory) with two NVIDIA GTX580 devices (each having 512 cores and 1.5GB memory), and NVIDIA K40 graphic unit (2,880 cores with 12GB memory). The Center houses a file server with secure backups of over 15 TB disk space devoted to funded projects. The Center has a drone (DJI Phantom 4 Pro) that can be used for reproducible field data collection using UAS (Unmanned Aerial Systems) technologies. An Access Grid node with multiple cameras and screens provides teleconferencing capabilities for researchers in the Center and will be used to facilitate collaboration among the PIs. The conference room also provides 1) 75-inch touch-screen smart board, 2) a 70-inch 1080i LCD display, and 3) Barco ClickShare wireless presentation system for group visualization of data and simulation results.

b. Details of Equipment Required

The PIs are requesting funds for the purchase of computing hardware that would support two file servers and one web server as shown in Figure 1.

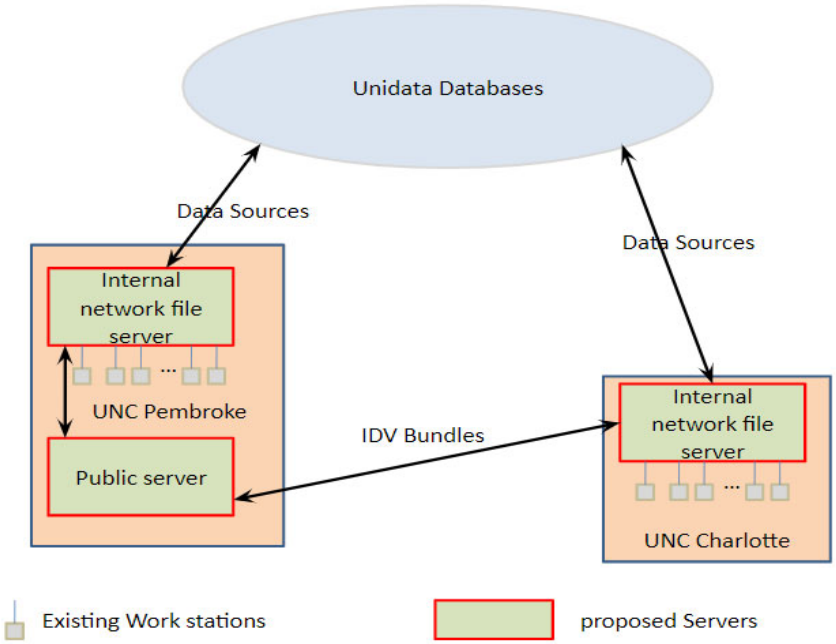


Figure 1. Framework design for the proposed collaborative geoscience learning system.

- **Two Local storage file servers** for the school internal networks: one in UNC Pembroke and one UNC Charlotte. They will store data source files to improve access and analysis of the Unidata datasets by providing the existing lab workstations fast access to data sources for class and research activities of:
    - geoscience faculty and students to analyze and visualize geoscience data
    - computer science faculty and students on data mining

- **One Public TDS/RAMADDAweb server** to share geoscience projects of Unidata Bundles to expose UNC Pembroke undergraduate students to the advanced course work of the UNC Charlotte graduate students in geoscience, who will explain why and how to do such advanced research projects, while UNC Pembroke faculty will further inspire students to form the goals of their possible advanced projects in the near future.
    - Readable and writable by the undergraduate level class assignments at UNC Pembroke
    - Readable and writable by the undergraduate and graduate level class assignments at UNC Charlotte
    - Readable and downloadable by the community after the active course session is closed and graded (grades will not be stored on the server).

The PI Dr. Zhang is an associate professor of computer science, who has been teaching different levels of system administration and security courses in UNC Pembroke for over ten years and therefore will have the expertise to and is willing to donate her time to set up and maintain the proposed file server and public web server (TDS or RAMADDA**)** in the computer lab SCI 1202 at UNC Pembroke. The Co-PI Dr. Tang, with the support from the IT staff of his department, will donate his time to set up and maintain the proposed equipment at UNC Charlotte.

c. Benefits

Below is a description of how we expect to expand the use of the Unidata software suite with the proposed equipment.

The initial collaborations will be set up among the following courses:

- CSC 4810 Data mining (Computer Science major; undergraduate-level at UNC Pembroke): Students are introduced to fundamental data mining algorithms and their applications. In this course, students will be introduced to the Unidata NetCDF format of datasets for use in homework assignments. Hence, students will learn NetCDF format converting and temporal feature retrieval, and generate action rules out of the projected Geoscience dimensional data. Students will also be exposed to graduate-level research activities by watching the presentations of advanced geoscience projects and participating in online discussions with the graduate students who made those presentations.
- GEOG 6282/8282 CyberGIS and Big Data (Geography major; graduate-level at UNC Charlotte): This course exposes students to cutting-edge cyberinfrastructure theories, methods, and geospatial applications. Students will make Geoscience data analysis and visualizations by using Unidata software and datasets, make presentations about their research findings, and participate in the online discussions to the undergraduate audience.

- GLY 5010 Essentials of Earth Science (Science Education major; graduate-level at UNC Pembroke): A broad range of topics in this course will be covered. In this course, students will be trained to acquire, analyze, synthesize data from the local servers and later store resultant data in the server. Unidata datasets of geoscience, such as soil moisture and surface water data, will be explored. Students will get acquainted with the Unidata software and later hone their skills to implement them in the applied field.
- GLYS 4050 Introduction to Hydrogeology (Geo-Environmental Studies major; undergraduate-level at UNC Pembroke): Distribution and occurrence of groundwater will be covered in this course. Unidata and visualization software will be introduced in this course. Students will also learn the implications of such large Unidata datasets in teaching and research.

The PIs have discovered huge enthusiasms among the faculty in the Department of Geography and Earth Science at UNC Charlotte about using the Unidata software and dataset to enrich a number of courses, from which the course presentations and projects may be exposed to and benefit the students at UNC Pembroke and the Lumbee Tribe communities. Table 1 shows the list of courses, of which the instructors at UNC Charlotte confirmed interest in using the Unidata software and datasets to enhance the curriculum. Table 2 shows a list of faculty from both Universities interested in using Unidata in their teaching and research agenda.

Table 1. List of courses at UNC Charlotte, which have confirmed interested in using Unidata software and datasets.

	Course Name	Course Number	#Potential Students
GIS	Web GIS	GEOG 4180/5180	5-15
	Spatial Statistics	GEOG 6120/8120	10-20
	CyberGIS and Big Data	GEOG 6282/8282	5-10
Earth Science	Numerical Modeling of the Earth System	ESCI 6120/INES 8120	5-15
	Landscape Assessment	ESCI 6105; GEOG 8223	5-15
	Geomorphology	GEOL 4105/5105	20-25
	Applied Soil Science	GEOL 4410/5410	15-20
	Statistics and Data Analysis in Earth Sciences	ESCI 4122 / ESCI 5122	15-20
	Applied Geophysics	GEOL 4115/5115	12

	Structural Geology	GEOL 3130	20
	Physical Geology	GEOL 1200	100
Meteorology	Meteorological Computer Applications	METR 4105/ESCI 5105	20
	Atmospheric Instrumentation	METR 4110 / ESCI 5110	15-20
	Advanced Synoptic Meteorology	METR 4245 / ESCI 5251	20-25
	Tropical Meteorology	METR 4320 / ESCI 5320	15-20
	Mesoscale Meteorology	METR 4350 / ESCI 5350	15-20
	Physical Meteorology	METR 3220	15-20

Table 2. List of representative faculties interested in using Unidata.

Program	**Faculty interested in using Unidata**	**University**
Meteorology	Brian Magi Casey Davenport Matthew Eastin Jack Sheff	UNC Charlotte
Earth Science	Missy Eppes Andy Bobyarchick	
GIS	Wenwu Tang	
Hydrology	Madan Maharjan	UNC Pembroke
Computer Science	Xin (Cynthia) Zhang	

The proposed system will benefit not only the undergraduate programs and graduate programs of geoscience, but also the graduate program of Science Education in Earth Science, which serves middle-school and high-school teachers in the Lumbee Tribe community around UNC Pembroke and therefore may attract a large number of underrepresented minorities to the geoscience study.

Besides the practical benefits for undergraduate and graduate research and education, we believe that the proposed equipment will also aid in geoscience outreach within the greater Charlotte area and the Lumbee Tribe region. We plan to use this equipment to construct outreach activities that will expose high school students to career paths within geoscience and computer science.

Obtaining these servers and access to Unidata streams will allow us to further integrate our students into our research program and to further promote undergraduate research. The

benefits of faculty and students' research are to expose students to the wide range of opportunities in Geosciences and at the same time engage them in geoscience research, broadly covering geology, hydrology, meteorology, geography, and earth sciences. While the number of geoscience majors is declining in recent years throughout the country, the collaborations between faculty and students between the departments and across the universities could improve the number of Geosciences majors, especially when a new and innovative approach to teaching (represented by Unidata server support here) is implemented. Such collaborations enhance the relevance and provide insights from multiple disciplines for more interdisciplinary collaboration.

The proposed equipment will also allow us to further our participation in the Unidata community and would expand the reach of the Unidata software and datasets within the community.

3. **Budget**:

The PIs propose the acquisition of the following computing hardware at the following cost as shown in the table below (Table 3):

Table 3. Itemized budget request.

Quantity	Item	Model	Unit Cost	Total Cost
1	TDS/RAMADDA server	Precision 5820 Tower	$2,031.27	$2,031.27
1	File server	Precision 5820 Tower	$3,892.23	$3,892.23
2	Laptop	Notebook ThinkPad X1	$1,890.00	$3,780.00
1	UPS	Tripp Lite UPS Smart LCD 1500VA	$244.20	$244.20
2	Monitor	ThinkVision T27hv-20 27-inch	$389.00	$778.00
		Total budget for UNC Pembroke		**$10,725.70**
1	File server	Precision 5820 Tower	$5,375.00	$5,375.00
2	Monitor	Dell 27 Monitor - P2719H	$198.00	$396.00
1	Desktop	Optiplex 5080 Small Form Factor	$1,311.87	$1,311.87
	Indirect Cost (51% of UNC Charlotte on items less than $ 5,000)			$871.01
		Total budget for UNC Charlotte		**$7,953.88**
		Grand Total Requested		$18,679.58

The above servers are selected based on the hardware requirements recommended by the Unidata project manager Mr. Jeff Weber. Also, the IT staff from the two universities examined the related computer lab facilities and suggested the purchase of desktop and laptops (for the testing purpose) and an Uninterruptible Power Supply (UPS).

While there will not be any direct cost sharing by UNCP and UNCC for the above equipment, the PIs will donate time for the installation, configuration, and maintenance of the system. The PIs will also donate time to train other faculty and students in the use of IDV and incorporation into undergraduate as well as graduate coursework and in the use of the web server to share the IDV bundles.

4. **Project Milestones**:

The proposed project will start in June 2021 and end in May 2022, covering one year. Table 4 shows the detailed timeline of our project.

Table 4. Timeline of the proposed project.

June 2021	Purchase and delivery of equipment
July 2021	Installation of hardware and software; test remote access and perform troubleshooting as needed
August 2021	Machine ready for educational use
December 2021	Student achievements
March 2022	Remote students' meetings, presentations, and discussions about class projects
May 2022	Completion of the report for the proposed project

5. **Conclusion**:

The collaborative learning system proposed in this project holds great promise for the collective learning and communication between students at a large research university in an urban area and undergraduates of a small university in a rural area. UNC Pembroke offers mostly undergraduate degrees and is serving the underrepresented Native American communities for higher degrees in Geoscience. Such collaboration is of great help for building up confidence in these students achieving their study and career goals while honing their own skills in Geosciences geared towards their future career. The course projects and datasets on the proposed TDS/RAMADDA server will also bring considerable benefits to Unidata, thus increasing the visibility of the Unidata community.

A quote for your consideration.

Based on your business needs, we put the following quote together to help with your purchase decision. Below is a detailed summary of the quote we've created to help you with your purchase decision.

To proceed with this quote, you may respond to this email, order online through your **Premier page**, or, if you do not have Premier, use this **Quote to Order**.

Quote No.	**3000081189006.1**	Sales Rep	Kris Ross
Total	**$5,923.50**	Phone	(800) 456-3355, 6180194
Customer #	9057672	Email	Kris_Ross@Dell.com
Quoted On	Mar. 17, 2021	**Billing To**	ACCOUNTS PAYABLE UNC PEMBROKE PO BOX 1510 PEMBROKE, NC 28372-1510
Expires by	Apr. 16, 2021		
Deal ID	21336372		

Message from your Sales Rep

Please contact your Dell sales representative if you have any questions or when you're ready to place an order. Thank you for shopping with Dell!

Regards,
Kris Ross

Shipping Group

Shipping To

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UNC PEMBROKE
1 UNIVERSITY DR
SOCIAL WORK DEPT
PEMBROKE, NC 28372-1510
(910) 775-4090

Shipping Method

Standard Delivery

Product	Unit Price	Quantity	Subtotal
Precision 5820 Tower	**$2,031.27**	**1**	**$2,031.27**
Precision 5820 Tower	**$3,892.23**	**1**	**$3,892.23**

Dell Marketing LP. U.S. only. Dell Marketing LP. is located at One Dell Way, Mail Stop 8129, Round Rock, TX 78682

Subtotal:	**$5,923.50**
Shipping:	**$0.00**
Non-Taxable Amount:	**$5,923.50**
Taxable Amount:	**$0.00**
Estimated Tax:	**$0.00**
Total:	**$5,923.50**

Special lease pricing may be available for qualified customers. Please contact your DFS Sales Representative for details.

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UNC PEMBROKE
1 UNIVERSITY DR
SOCIAL WORK DEPT
PEMBROKE, NC 28372-1510
(910) 775-4090

Shipping Method

Standard Delivery

		Quantity	Subtotal
Precision 5820 Tower	**$2,031.27**	**1**	**$2,031.27**

Estimated delivery if purchased today:
Apr. 15, 2021
Contract # C000000181093
Customer Agreement # MHEC-07012015

Description	SKU	Unit Price	Quantity	Subtotal
Precision 5820 Tower XCTO Base	210-ANJK	-	1	-
Intel Xeon Processor W-2265 (12C 3.5GHz 4.8GHz Turbo HT 19.25MB 165W DDR4-2933)	338-BUNS	-	1	-
CPU Heatsink 5820 Tower	412-AALF	-	1	-
Red Hat Enterprise Linux WS v8.0 with 1 YR RHN	634-BVNL	-	1	-
Precision 5820 Tower 950W PCIe FlexBay Chassis CL	321-BFGK	-	1	-
AMD Radeon Pro WX 3200, 4GB, 4 mDP (FWS)	490-BFKK	-	1	-
16GB 2x8GB DDR4 2933MHz RDIMM ECC Memory	370-AESX	-	1	-
Intel vPro Technology Enabled	631-ABMK	-	1	-
Intel NVMe PCIe SSD (Front PCIe FlexBay)	414-BBBV	-	1	-
Intel Integrated controller (RST-e) with 1-2 Front FlexBay NVMe PCIe Drives	321-BDWI	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 1TB PCIe NVMe Class 40 Solid State Drive	401-ABJR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Optical	429-ABER	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No RAID	780-BBCJ	-	1	-
Slim ODD bezel, 100% tie with slim ODD	325-BCUD	-	1	-
8x DVD+/-RW 9.5mm Optical Disk Drive	429-ABDW	-	1	-
GPT is 100% required for all order	411-XXYB	-	1	-
No Additional Keyboard	580-ABIS	-	1	-
Thank You for Choosing Dell	340-ADBJ	-	1	-
No Additional Network Card Selected (Integrated NIC included)	555-BBJO	-	1	-
No Driver	555-BBNI	-	1	-
Trusted Platform Module (Discrete TPM Enabled)	329-BBJL	-	1	-

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US Power Cord	470-AAKG	-	1	-
SERI Guide (ENG/FR/Multi)	340-AGIK	-	1	-
Placemat 5820 Tower MUI DAO	340-BYNM	-	1	-
Resource DVD not Included	430-XXYU	-	1	-
OS-Windows Media Not Included	620-AALW	-	1	-
Not ENERGY STAR Qualified	387-BBBE	-	1	-
No Optimizer	640-BBQT	-	1	-
No Driver	555-BBNI	-	1	-
No UPC Label	389-BCGW	-	1	-
Ship Material Tower 5820,7820	328-BCRU	-	1	-
SHIP,PWS,LNK,NO,NO,AMF	340-AEYP	-	1	-
T5820 950W Regulatory Label (DAO)	389-CGKH	-	1	-
No Stand included	575-BBCH	-	1	-
No Accessories	461-AABV	-	1	-
Enable Low Power Mode	658-BBMQ	-	1	-
No Anti-Virus Software	650-AAAM	-	1	-
Thank you choosing Dell ProSupport. For tech support, visit //support.dell.com/ProSupport	989-3449	-	1	-
Dell Limited Hardware Warranty Plus Service	997-7163	-	1	-
ProSupport: Next Business Day Onsite 4 Years	997-7189	-	1	-
ProSupport: 7x24 Technical Support, 4 Years	997-7209	-	1	-
			Quantity	**Subtotal**
Precision 5820 Tower		**$3,892.23**	**1**	**$3,892.23**

Estimated delivery if purchased today:
Apr. 15, 2021
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Description	**SKU**	**Unit Price**	**Quantity**	**Subtotal**
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AMD Radeon Pro WX 3200, 4GB, 4 mDP (FWS)	490-BFKK	-	1	-
64GB 4x16GB DDR4 2933MHz RDIMM ECC Memory	370-AESL	-	1	-
Intel vPro Technology Enabled	631-ABMK	-	1	-
MegaRAID NVMe PCIe SSD Front PCIe FlexBay	379-BDNW	-	1	-
MegaRAID 9460-16i 12Gb/s PCIe RAID controller (4GB cache) with 1-2 Front FlexBay NVMe PCIe Drives	321-BDFN	-	1	-
MegaRAID 9460-16i 12Gb/s PCIe RAID controller (4GB cache) with 1-2 Front FlexBay NVMe PCIe Drives	321-BDFN	-	1	-
MegaRAID SAS 9460-16i 12Gb/s PCIe SATA/SAS HW RAID controller (4GB cache)	403-BBRG	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 1TB PCIe NVMe Class 40 Solid State Drive	401-ABJR	-	1	-

Dell M.2 carrier	400-AVDR	-	1	-
M.2 2TB PCIe NVMe Class 40 Solid State Drive	401-ABPP	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 2TB PCIe NVMe Class 40 Solid State Drive	401-ABPP	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Optical	429-ABER	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No RAID	780-BBCJ	-	1	-
Slim ODD bezel, 100% tie with slim ODD	325-BCUD	-	1	-
8x DVD+/-RW 9.5mm Optical Disk Drive	429-ABDW	-	1	-
GPT is 100% required for all order	411-XXYB	-	1	-
No Additional Keyboard	580-ABIS	-	1	-
Thank You for Choosing Dell	340-ADBJ	-	1	-
No Additional Network Card Selected (Integrated NIC included)	555-BBJO	-	1	-
No Driver	555-BBNI	-	1	-
Trusted Platform Module (Discrete TPM Enabled)	329-BBJL	-	1	-
US Power Cord	470-AAKG	-	1	-
SERI Guide (ENG/FR/Multi)	340-AGIK	-	1	-
Placemat 5820 Tower MUI DAO	340-BYNM	-	1	-
Resource DVD not Included	430-XXYU	-	1	-
OS-Windows Media Not Included	620-AALW	-	1	-
Not ENERGY STAR Qualified	387-BBBE	-	1	-
No Optimizer	640-BBQT	-	1	-
No Driver	555-BBNI	-	1	-
No UPC Label	389-BCGW	-	1	-
Ship Material Tower 5820,7820	328-BCRU	-	1	-
SHIP,PWS,LNK,NO,NO,AMF	340-AEYP	-	1	-
T5820 950W Regulatory Label (DAO)	389-CGKH	-	1	-
No Stand included	575-BBCH	-	1	-
No Accessories	461-AABV	-	1	-
Enable Low Power Mode	658-BBMQ	-	1	-
No Anti-Virus Software	650-AAAM	-	1	-
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ProSupport: Next Business Day Onsite 4 Years	997-7189	-	1	-
ProSupport: 7x24 Technical Support, 4 Years	997-7209	-	1	-

Subtotal:	**$5,923.50**
Shipping:	**$0.00**
Estimated Tax:	**$0.00**
Total:	**$5,923.50**

Dell Marketing LP. U.S. only. Dell Marketing LP. is located at One Dell Way, Mail Stop 8129, Round Rock, TX 78682

Important Notes

Terms of Sale

This Quote will, if Customer issues a purchase order for the quoted items that is accepted by Supplier, constitute a contract between the entity issuing this Quote ("Supplier") and the entity to whom this Quote was issued ("Customer"). Unless otherwise stated herein, pricing is valid for thirty days from the date of this Quote. All product, pricing and other information is based on the latest information available and is subject to change. Supplier reserves the right to cancel this Quote and Customer purchase orders arising from pricing errors. Taxes and/or freight charges listed on this Quote are only estimates. The final amounts shall be stated on the relevant invoice. Additional freight charges will be applied if Customer requests expedited shipping. Please indicate any tax exemption status on your purchase order and send your tax exemption certificate to Tax_Department@dell.com or ARSalesTax@emc.com, as applicable.

Governing Terms: This Quote is subject to: (a) a separate written agreement between Customer or Customer's affiliate and Supplier or a Supplier´s affiliate to the extent that it expressly applies to the products and/or services in this Quote or, to the extent there is no such agreement, to the applicable set of Dell's Terms of Sale (available at www.dell.com/terms or www.dell.com/oemterms), or for cloud/as-a-Service offerings, the applicable cloud terms of service (identified on the Offer Specific Terms referenced below); and (b) the terms referenced herein (collectively, the "Governing Terms"). Different Governing Terms may apply to different products and services on this Quote. The Governing Terms apply to the exclusion of all terms and conditions incorporated in or referred to in any documentation submitted by Customer to Supplier.

Supplier Software Licenses and Services Descriptions : Customer's use of any Supplier software is subject to the license terms accompanying the software, or in the absence of accompanying terms, the applicable terms posted on www.Dell.com/eula. Descriptions and terms for Supplier-branded standard services are stated at www.dell.com/servicecontracts/global or for certain infrastructure products at www.dellemc.com/en-us/customer-services/product-warranty-and-service-descriptions.htm

Offer-Specific, Third Party and Program Specific Terms: Customer's use of third-party software is subject to the license terms that accompany the software. Certain Supplier-branded and third-party products and services listed on this Quote are subject to additional, specific terms stated on www.dell.com/offeringspecificterms ("Offer Specific Terms").

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Customer Name: UNIV OF N CAROLINA-PEMBROKE
Customer Number: 1213351929

Bid Request No. BRPNS000857674
Created On: 15-Mar-2021
Last Updated: 15-Mar-2021
Master Contract No. MC00030805
Customer Contract No. Lenovo Standard Terms & Conditions

Sales Representative: Lora Eckler
Phone Number: +1 (301) 919-5018
Email: leckler@lenovo.com
Contract:

Thank you for requesting a quote from Lenovo. Your complete quote information is included below. Please feel free to reach me by phone or email to place your order.

PRODUCT AND SERVICE DETAILS

Part Number	Description	Qty	Unit Price	End Date	Total
62A9GAR1US	ThinkVision T27hv-20 27-inch QHD VoIP Monitor	1	389.00	15-Mar-2022	389.00
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
				[redacted]	[redacted]

TERMS AND CONDITIONS

Prices quoted are valid through 14-May-2021 but are subject to change due to events outside Lenovos reasonable control which may necessitate a price increase. Pricing does not include taxes, fees, or other charges which may be imposed on the items purchased.
Unless a separate agreement exists between Lenovo and Customer, all purchases are subject to the Lenovo Terms and Conditions displayed at the following internet address: https://download.lenovo.com/lenovo/content/pdf/tnc/tc2.pdf

Thank you for choosing Lenovo!

QUOTE CONFIRMATION

DEAR KEVIN PAIT,

Thank you for considering CDW•G for your computing needs. The details of your quote are below. Click here to convert your quote to an order.

QUOTE #	QUOTE DATE	QUOTE REFERENCE	CUSTOMER #	GRAND TOTAL
1C4DCLR	3/19/2021	UNITDATA GRANT PROPOSAL	5972230	$244.20

QUOTE DETAILS

ITEM	QTY	CDW#	UNIT PRICE	EXT. PRICE
Tripp Lite UPS Smart LCD 1500VA 900W AVR 2U Rack Tower 120V 8 Outlets LCD Mfg. Part#: SMART1500LCD UNSPSC: 26111701 Contract: E&I CNR01439 Catalog (CNR01439)	1	892647	$228.22	$228.22

PURCHASER BILLING INFO

Billing Address:
KEVIN PAIT
UNIV OF NORTH CAROLINA - PEMBROKE
1 UNIVERSITY RD
PEMBROKE, NC 28372-8699
Phone: (910) 521-6179
Payment Terms:

DELIVER TO

Shipping Address:
UNC PEMBROKE
ATTN:KEVIN PAIT
1 UNIVERSITY DRIVE
PEMBROKE, NC 28372
Phone: (910) 521-6179
Shipping Method: UPS Ground (2- 3 Day)

SUBTOTAL	$228.22
SHIPPING	$0.00
SALES TAX	$15.98
GRAND TOTAL	$244.20

Please remit payments to:

CDW Government
75 Remittance Drive
Suite 1515
Chicago, IL 60675-1515

Need Assistance? CDW•G SALES CONTACT INFORMATION

Robert Chlupsa | (866) 784-1652 | robert.chlupsa@cdwg.com

This quote is subject to CDW's Terms and Conditions of Sales and Service Projects at
http://www.cdwg.com/content/terms-conditions/product-sales.aspx
For more information, contact a CDW account manager

© 2021 CDW•G LLC, 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 | 800.808.4239

Customer Name: UNIV OF N CAROLINA-PEMBROKE
Customer Number: 1213351929

Bid Request No. BRPNS000883643
Created On: 19-Mar-2021
Last Updated: 22-Mar-2021
Valid Until: 18-May-2021
Master Contract No. MC00030805
Customer Contract No. Lenovo Standard Terms & Conditions

Sales Representative: Lora Eckler
Phone Number: +1 (301) 919-5018
Email: leckler@lenovo.com
Contract: 5317599125

Thank you for requesting a quote from Lenovo. Your complete quote information is included below. Please feel free to reach me by phone or email to place your order.

PRODUCT AND SERVICE DETAILS

Part Number	Description	Qty	Unit Price	End Date	Total
20Y0S0EL00	Notebook ThinkPad X1 Yoga Gen 6 20Y0CTO1	2	1,890.00	22-Mar-2022	3,780.00
				Grand Total	**USD 3,780.00**

Lenovo Financial Services

Did you know that Lenovo can help wrap all of your hardware, software and services into a single cost-effective fixed monthly payment by using Lenovo Financial Services? Conserve capital, lower your cost of use and gain top performance with ongoing support. **Ask us how!**

CONFIGURATION DETAILS

Components	Description	Qty
20Y0S0EL00	Notebook ThinkPad X1 Yoga Gen 6 20Y0CTO1	2
Country/Region	USA	
Warranty	3 Year Courier or Carry-in	
Preload Type	Standard Image (Preload)	
Preload OS	Windows 10 Home 64	
Color	Grey	
Athena Certified Model	Evo Certified	
Graphics	Integrated Iris Xe Graphics	
Processor	Intel Core i7-1185G7 Processor (3.00GHz, up to 4.80GHz with Turbo Boost, 4 Cores, 8 Threads, 12MB Cache)	
Onboard Memory	16GB LPDDR4X 4266MHz Onboard	
Wireless LAN	Intel Wi-Fi 6 AX201 2x2ax, Bluetooth Version 5.0 or above vPro	
Security Chip Setting	Enabled Discrete TPM2.0	
System Unit	X1Y6 i7-1185G7 VP IG+16G+AX201	
Absolute BIOS Selection	BIOS Absolute Enabled	
Display	14.0" WUXGA (1920 x 1200) IPS Anti Reflection/Anti Smudge 400nits Multitouch Narrow Bezel 100%sRGB	
Human Presence Detection	Human Presence Detection	
Camera	IR and 720P HD Camera with Microphone	

Components	Description	Qty
Fingerprint Reader	Fingerprint Reader	
Display Shell	14.0" WUXGA (1920 x 1200) IPS Anti Reflection/Anti Smudge 400nits Multitouch Narrow Bezel 100%sRGB, IR and HD Camera, Mic, Human Presence Detection	
Battery	4 Cell Li-Polymer Internal Battery, 57Wh	
Storage Selection	512GB Solid State Drive, M.2 2280, PCIe Gen4 Performance NVMe, OPAL2.0, TLC	
Lenovo Pen	Lenovo Integrated Pen	
Ethernet Dongle	USB-C to RJ45	
Package Box Type	Retail Packaging	
Power Adapter	45W AC Adapter 90% PCC (2pin) - US (USB Type C)	
Keyboard	Backlit Keyboard Grey English with Fingerprint Reader	
Preload Language	Windows 10 Home 64 English	
OS DPK	W10 Home Plus	
Publication	Publication - Polish/Portuguese/English	
Custom Asset Tag	Enhanced Asset Tag	
vPro Certified Model	No vPro Certified	
Intel Trusted Device Setup	No Intel Drop Ship Setup	
Secured Core L3 Enabled	No Level 3 Security	
CO2 Neutral Label	No CO2 Neutral Label	
WWAN Selection	No WWAN	
Electronic Privacy Filter	No ePrivacy Filter	
Integrated Wireless Antenna	No WWAN Antenna	
NFC	No NFC	
Wireless WAN	No Wireless WAN	
WWAN SIM Card	No WWAN SIM Card	
Graphic Dongle	No Graphic Dongle	
Adobe Creative Cloud	None	
Adobe Elements	None	
Adobe Acrobat	None	
Microsoft Office	None	
Security Software	None	
Keyboard Patch	None	
Custom Image Type	None	
Image Management	None	
Cloud Recovery	None	
Hard Drive Encryption	None	
Premier Asset Tag	None	
Drop In Box	None	
BIOS Customization	None	
vPro Factory Pre-provisioning	None	
Transparent Supply Chain	No Transparent Supply Chain	
Cloud Security Software	None	
Common Others2	None	

Components	Description	Qty
Common Others3	None	
Common Others4	None	
Common Others5	None	
Future Services 1	None	
Future Services 2	None	
Future Services 3	None	
Future Services 4	None	
X1Y6 Others1	None	
X1Y6 Others2	None	
X1Y6 Others3	None	
X1Y6 Others4	None	
X1Y6 Others5	None	
Offering Model	Relationship Model	
OS Type	Windows 10 Standard	
GEO	NA	
Region	ROW	
Package Box	Retail	
System Unit 2nd	D-Cover WLAN GY	
CPU Label	Evo Core i7	
Microsoft Label	None	
OSL Derive	ENG	
Publication 2	PUB POL/POR/BUL/BRL/SPA/ENG	
Warranty Card	None	
ASCII PW Support on BIOS	KBL_ID_ENG_KBLANG_409	
KB Derive	ENG	
MB FRU Label	WIN Y-AMT Y-dTPM Y-ABS	
S5	Warranty 4Y Depot/CCI	2
S5	Protection 4Y ADP Add On	2

TERMS AND CONDITIONS

Prices quoted are valid through 18-May-2021 but are subject to change due to events outside Lenovos reasonable control which may necessitate a price increase. Pricing does not include taxes, fees, or other charges which may be imposed on the items purchased.
Unless a separate agreement exists between Lenovo and Customer, all purchases are subject to the Lenovo Terms and Conditions displayed at the following internet address: https://download.lenovo.com/lenovo/content/pdf/tnc/tc2.pdf

Thank you for choosing Lenovo!

A quote for your consideration.

Based on your business needs, we put the following quote together to help with your purchase decision. Below is a detailed summary of the quote we've created to help you with your purchase decision.

To proceed with this quote, you may respond to this email, order online through your **Premier page**, or, if you do not have Premier, use this **Quote to Order**.

Quote No.	**3000080880480.1**	Sales Rep	Kris Ross
Total	**$5,375.00**	Phone	(800) 456-3355, 6180194
Customer #	3642332	Email	Kris_Ross@Dell.com
Quoted On	Mar. 12, 2021	**Billing To**	UNC CHARLOTTE UNC - CHARLOTTE ACCTS PAYABLE 9201 UNIVERSITY CITY BLVD CHARLOTTE, NC 28223-0001
Expires by	Apr. 11, 2021		
Deal ID	21392206		

Message from your Sales Rep

Please contact your Dell sales representative if you have any questions or when you're ready to place an order. Thank you for shopping with Dell!

Regards,
Kris Ross

Shipping Group

Shipping To

CHRISTINE YOUNG
UNC - CHARLOTTE
150 N RESEARCH CAMPUS DR
STE 3333/RM 3408
KANNAPOLIS, NC 28081
(704) 687-2411

Shipping Method

Standard Delivery

Product	Unit Price	Quantity	Subtotal
Precision 5820 Tower	**$5,375.00**	**1**	**$5,375.00**

Dell Marketing LP. U.S. only. Dell Marketing LP. is located at One Dell Way, Mail Stop 8129, Round Rock, TX 78682

Subtotal:	**$5,375.00**
Shipping:	**$0.00**
Non-Taxable Amount:	**$5,375.00**
Taxable Amount:	**$0.00**
Estimated Tax:	**$0.00**
Total:	**$5,375.00**

Special lease pricing may be available for qualified customers. Please contact your DFS Sales Representative for details.

Dell Marketing LP. U.S. only. Dell Marketing LP. is located at One Dell Way, Mail Stop 8129, Round Rock, TX 78682

Shipping Group Details

Shipping To

CHRISTINE YOUNG
UNC - CHARLOTTE
150 N RESEARCH CAMPUS DR
STE 3333/RM 3408
KANNAPOLIS, NC 28081
(704) 687-2411

Shipping Method

Standard Delivery

		Quantity	Subtotal
Precision 5820 Tower	**$5,375.00**	**1**	**$5,375.00**

Estimated delivery if purchased today:
Mar. 31, 2021
Contract # C000000181093
Customer Agreement # MHEC-07012015

Description	SKU	Unit Price	Quantity	Subtotal
Precision 5820 Tower XCTO Base	210-ANJK	-	1	-
Intel Xeon Processor W-2295 (18C 3.0GHz 4.6GHz Turbo HT 24.75MB 165W DDR4-2933MHz)	338-BUNT	-	1	-
CPU Heatsink 5820 Tower	412-AALF	-	1	-
Red Hat Enterprise Linux WS v8.0 with 1 YR RHN	634-BVNL	-	1	-
Precision 5820 Tower 950W PCIe FlexBay Chassis CL	321-BFGK	-	1	-
AMD Radeon Pro W5700, 8GB, 5 mDP, USB-C (Precision 7920R/7920T/7820T/5820T)	490-BGHL	-	1	-
Adapter 6+2 connector to 2x 6+2 connectors RTX chassis	492-BCQN	-	1	-
64GB 4x16GB DDR4 2933MHz RDIMM ECC Memory	370-AESL	-	1	-
Intel vPro Technology Enabled	631-ABMK	-	1	-
MegaRAID NVMe PCIe SSD Front PCIe FlexBay	379-BDNW	-	1	-
MegaRAID 9460-16i 12Gb/s PCIe RAID controller (4GB cache) with 1-2 Front FlexBay NVMe PCIe Drives	321-BDFN	-	1	-
MegaRAID 9460-16i 12Gb/s PCIe RAID controller (4GB cache) with 1-2 Front FlexBay NVMe PCIe Drives	321-BDFN	-	1	-
MegaRAID SAS 9460-16i 12Gb/s PCIe SATA/SAS HW RAID controller (4GB cache)	403-BBRG	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 1TB PCIe NVMe Class 40 Solid State Drive	401-ABJR	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 2TB PCIe NVMe Class 40 Solid State Drive	401-ABPP	-	1	-
Dell M.2 carrier	400-AVDR	-	1	-
M.2 2TB PCIe NVMe Class 40 Solid State Drive	401-ABPP	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Optical	429-ABER	-	1	-
No Hard Drive	400-AKZR	-	1	-
No Hard Drive	400-AKZR	-	1	-
No RAID	780-BBCJ	-	1	-
Slim ODD bezel, 100% tie with slim ODD	325-BCUD	-	1	-
8x DVD+/-RW 9.5mm Optical Disk Drive	429-ABDW	-	1	-

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GPT is 100% required for all order	411-XXYB	-	1	-
No Additional Keyboard	580-ABIS	-	1	-
Thank You for Choosing Dell	340-ADBJ	-	1	-
No Additional Network Card Selected (Integrated NIC included)	555-BBJO	-	1	-
No Driver	555-BBNI	-	1	-
Trusted Platform Module (Discrete TPM Enabled)	329-BBJL	-	1	-
US Power Cord	470-AAKG	-	1	-
SERI Guide (ENG/FR/Multi)	340-AGIK	-	1	-
Placemat 5820 Tower MUI DAO	340-BYNM	-	1	-
Resource DVD not Included	430-XXYU	-	1	-
OS-Windows Media Not Included	620-AALW	-	1	-
Not ENERGY STAR Qualified	387-BBBE	-	1	-
No Optimizer	640-BBQT	-	1	-
No Driver	555-BBNI	-	1	-
No UPC Label	389-BCGW	-	1	-
Ship Material Tower 5820,7820	328-BCRU	-	1	-
SHIP,PWS,LNK,NO,NO,AMF	340-AEYP	-	1	-
T5820 950W Regulatory Label (DAO)	389-CGKH	-	1	-
No Stand included	575-BBCH	-	1	-
No Accessories	461-AABV	-	1	-
Enable Low Power Mode	658-BBMQ	-	1	-
No Anti-Virus Software	650-AAAM	-	1	-
Thank you choosing Dell ProSupport. For tech support, visit //support.dell.com/ProSupport	989-3449	-	1	-
Dell Limited Hardware Warranty Plus Service	997-7163	-	1	-
ProSupport: Next Business Day Onsite 4 Years	997-7189	-	1	-
ProSupport: 7x24 Technical Support, 4 Years	997-7209	-	1	-

Subtotal:	**$5,375.00**
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Supplier Software Licenses and Services Descriptions : Customer's use of any Supplier software is subject to the license terms accompanying the software, or in the absence of accompanying terms, the applicable terms posted on www.Dell.com/eula. Descriptions and terms for Supplier-branded standard services are stated at www.dell.com/servicecontracts/global or for certain infrastructure products at www.dellemc.com/en-us/customer-services/product-warranty-and-service-descriptions.htm

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Wenwu Tang <wtang4@uncc.edu>

[EXTERNAL] Dell Computer - Saved Quote Information -1034987754809

Dell Inc. <dell_automated_email@dell.com> Thu, Mar 11, 2021 at 2:33 PM
Reply-To: "Dell Inc." <dell_automated_email@dell.com>
Cc: wenwutang@uncc.edu

[**Caution**: Email from External Sender. Do not click or open links or attachments unless you know this sender.]

You have saved an eQuote 1034987754809

An eQuote is now saved in your Dell Online Store.
This will be held for 30 days and will expire on 04/10/2021

Your eQuote has been sent to:

Emailed to: WenwuTang@uncc.edu

To retrieve this eQuote

Login to Premier
Sign in to University of North Carolina Charlotte
Click on "Quotes" in the top menu bar and search for eQuote number 1034987754809

eQuote Name	Dell Desktop
Saved By	WenwuTang@uncc.edu
eQuote Description	
Authorized Buyer	
Notes/Comments	
Account Name	University of North Carolina Charlotte
Contract Code	C000000181093

eQuote Summary

Description	Quantity	Unit Price	Subtotal
OptiPlex 5080 Small Form Factor	**1**	**$1,311.87**	**$1,311.87**
Dell 27 Monitor - P2719H	**2**	**$198.00**	**$396.00**

eQuote Subtotal	$1,707.87
Shipping*	$0.00
Shipping Discount*	$0.00
Tax*	$0.00
Environmental Disposal Fee*	$0.00

eQuote Total* **$1,707.87**

*The eQuote total, including applicable taxes and additional fees, may be viewable online.

Note: Your order may contain one or more items which are billed on a recurring basis. See Important Notes for details on your specific offering and, for customers with auto-renewing subscriptions, how to turn off automatic renewal.

eQuote Details

Description	Quantity	Price
rcrc959112-5688647 | OptiPlex 5080 Small Form Factor	**1**	**$1,311.87**

Module	Description	Product Code	Sku	ID
OptiPlex 5080 Small Form Factor	OptiPlex 5080 SFF XCTO	G3RHZQ8	[210-AVOX]	1
Processor	10th Generation Intel® Core™ i5-10600 (6-Core, 12MB Cache, 3.3GHz to 4.8GHz, 65W)	GCF52YQ	[338-BVCC]	146
Operating System	Windows 10 Home 64bit, English, French, Spanish	G9PDXR1	[619-AHHO]	11
Microsoft Application Software	No Microsoft Office License Included-30 day Trial Offer Only	GC7OFJV	[658-BCSB]	1002
Memory	64GB, 4x16GB, DDR4 non-ECC Memory	GQTN21R	[370-AFKD]	3
Hard Drive	M.2 1TB PCIe NVMe Class 40 Solid State Drive	G7XZWUV	[400-BEUI] [773-BBBC] [412-AAQT]	8
Additional Hard Drive	No Additional Hard Drive	G780XKR	[401-AANH]	637
Video Card	AMD Radeon RX 640, 4GB, LP (DP/mDP/mDP)	GF3PBXE	[490-BGBO]	6
Chassis Options	OptiPlex 5080 Small Form Factor with 200W up to 85% efficient Power Supply (80Plus Bronze)	GS4WZ9F	[329-BEVD]	116
Optical Drive	No Optical Drive SFF	G69A5CJ	[429-ABKF]	16
Optical Software	PowerDVD Software not included	GI5LS2C	[632-BBBJ]	597

Additional Storage Devices - Media Reader	No Media Card Reader Selected	GW2K1D6	[379-BBHM]	10
Power Cord	System Power Cord (US)	GA5894N	[450-AAOJ]	20
Chassis Intrusion Switch	Chassis Intrusion Switch - SFF	GA6RJ41	[461-AAEE]	289
Wireless	No Wireless LAN Card	GE7Y41P	[555-BBFO]	19
Wireless Driver	No Wireless Driver	GQMKF4C	[340-AFMQ]	7
Stands and Mounts	No Stand Option	GJO5ZSE	[575-BBBI]	558
Adapter	No Additional Cable	GIX0L8M	[379-BBCY]	592
Serial Port Adapter	No Parallel or Serial Port	GVEYOQ7	[492-BBFF]	698
Keyboard	Dell KB216 Wired Keyboard English	GZDPBC1	[580-ADJC]	4
Mouse	Dell Optical Mouse - MS116 (Black)	GWDQT3O	[570-ABIE]	12
Back Cover	No Cable Cover	GDT2C7Z	[325-BCZQ]	376
Software Stack	Dell Applications Windows 10 with Dell Optimizer	GIG5KLR	[658-BBMR] [640-BBLW] [658-BBRB] [658-BEOK] [658-BEQP] [525-BBCL]	1003
Operating System Recovery Options	OS-Windows Media Not Included	GLA9OQ1	[620-AALW]	200013
ENERGY STAR	ENERGY STAR Qualified	G6J34SM	[387-BBLW]	122
EPEAT 2018	EPEAT 2018 Registered (Silver)	GTZOE2H	[379-BDTO]	200331
Documentation	Safety/Environment and Regulatory Guide (English/French Multi-language)	G7RB0GY	[340-AGIK]	21
System Monitoring Options	Dell Watchdog Timer	G0M2LT3	[379-BDWG]	39
Placemat	Quick Setup Guide 5080 SFF	GDRY749	[340-CPQF]	60
Order Information	US No Canada Ship Charge	G3IA0L8	[332-1286]	111
EAN/UPC Labels	No UPC Label	G8WGTYN	[389-BCGW]	292
Bios for TPM	Trusted Platform Module (Discrete TPM Enabled)	GJMDKT6	[329-BBJL]	297
Shipping Material	Shipping Material for SFF (DAO)	GDKRO4V	[340-CQYR] [389-BBUU]	465
CompuTrace Offerings	No Computrace	GO1F2XY	[461-AABF]	697
Label	Regulatory Label for OptiPlex 5080 SFF 200 W, DAO	GSK01LZ	[389-DVUB]	676
Hard Drive Cables and Brackets	M.2 Caddy	GGPQ1ML	[575-BBKX]	705
Intel Responsiveness Technologies	NO INTEL RESPONSIVE	GH8DSLC	[551-BBBJ]	707
Processor Label	Intel® Core™ i5 Processor Label	GES6Q9A	[340-CNBZ]	749

Transportation from ODM to region	Standard shipment	GQT8IGC	[800-BBIO]	200080
Protect Your New PC	No Anti-Virus Software	GD4K19S	[650-AAAM]	1014
External Speakers	No External Speaker	GTNM7E2	[817-BBBC]	200095
FGA Module	No FGA	NOFGA	[817-BBBB]	572
Add-in Cards	No Additional Add In Cards	GNV4J7Q	[382-BBHX]	583
Windows AutoPilot	No Windows AutoPilot	GYEO2AP	[340-CKSZ]	291
Additional Video Ports	No Additional Video Ports	GWFXAL0	[492-BCKH]	495
Systems Management	Intel Standard Manageability (ISM)	G5H9A74	[631-ACOK]	49
Image Restore	No Dell Backup and Recovery software	GW2ESA7	[637-AAAM]	200076
Optane	No Optane	GGALRD0	[400-BFPO]	200304
Speakers	No Internal Speaker	GK95QLS	[520-AARK]	18
External Optical Device	No External ODD	GVTOW4N	[429-ABGY]	317
Additional System Options	CFI,Information,MIAS, Post Bur n,Factory Install	7367225	[362-7806]	701
Additional System Options	CFI Titan Code for CFI FIDA or Bypass SI	7367227	[364-1846]	701
Additional System Options	CFI,Information, Validation,Se lect Any Microsoft OS	7367228	[364-4107]	701
Additional System Options	CFI Routing SKU	7367229	[365-0257]	701
Additional System Options	Custom Asset Tag	7367230	[366-0133]	701
Additional System Options	Custom Asset Report	7367231	[366-0135]	701
Additional System Options	CFI,Information Client,Only	7367232	[371-0941]	701
Additional System Options	CFI,Information,CSRouting,Elig ible,Factory Install	7367233	[375-3088]	701
Hardware Support Services	5 Years Hardware Service with Onsite/In-Home Service After Remote Diagnosis	NBD5	[804-9047] [804-9043]	29

rcrc959112-5893273 | Dell 27 Monitor - P2719H **2** **$396.00**

Module	Description	Product Code	Sku	ID

Dell 27 Monitor - P2719H	Dell 27 Monitor - P2719H	GUW34VT	[210-AQCS]	1
Hardware Support Services	3 Years Advanced Exchange Service	G0KE8ZL	[815-2492] [815-2491]	29

eQuote Subtotal	$1,707.87
Shipping*	$0.00
Shipping Discount*	$0.00
Tax*	$0.00
Environmental Disposal Fee*	$0.00
eQuote Total*	**$1,707.87**

*The eQuote total, including applicable taxes and additional fees, may be viewable online.

Let's connect.

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UNIVERSITY of NORTH CAROLINA
PEMBROKE

Division of Information Technology

SERVICE LEVEL AGREEMENT

Purpose

This agreement outlines the day-to-day technology support to be provided by UNCP's Division of Information Technology to the Unidata Community Equipment grant project. This agreement will remain in force until the end of the grant. This period will be used by Division of Information Technology and the department of **Mathematics and Computer Science** staff needs for identifying computing support and develop an appropriate strategy for ongoing support throughout the time of the grant. At that time, the agreement will be reviewed for needed changes, revised as appropriate, and renewed as mutually agreed by all parties involved.

Division of Information Technology (DoIT) Commitment

Project Management

Project management will be involved after the UNCP proposal is accepted to receive the grant for the Unidata Community Equipment Awards grant

Operations

Network Infrastructure: Since the department of Mathematics and Computer Science faculty will be responsible for the server installation and maintenance the Division of Information Technology will be providing support for placing these servers in an appropriate network configuration.

Infrastructure: DoIT has surveyed the intended location for the grant equipment, Oxendine Room 1202, and has assessed it for data connectivity, power, and physical security. Based on our review, we agree that the room has sufficient data, power, and physical security to house the intended system for the intended purpose of the grant.

Hardware Support: DoIT will be responsible for providing a quote for the two servers described in the grant proposal (need a link to the grant proposal).

Additional support: The Division of Information Technology Help Desk will facilitate assistance with UNCP networking needs for UNCP employees. The Help Desk is reached by calling 910-521-6260. Division of Information Technology will provide support for the following:

- Calls to the Division of Information Technology Help Desk during non-business hours Monday through Friday, and during weekends and holidays are forwarded to the Division of Information Technology voice mail system.
- Voice mails are checked each weekday morning.

Other considerations
- NA

Mathematics and Computer Science Commitment

Mathematics and Computer Science faculty will:
- Be responsible for all costs related to hardware and software needs on the premises, including adding additional network drops in the space to house the hardware, uninterruptable powers supplies, additional rack shelving if needed.
- Be responsible for all software-licensing fees paid by Division of Information Technology on ***Mathematics and Computer Science's*** behalf, as allocated on same cost basis to all other respective UNCP Departments when appropriate.
- Be responsible for adhering to UNCP technology standards with respect to networking, and computing hardware and software as appropriate. Nonstandard technology implementations will be the sole responsibility of the department of ***Mathematics and Computer Science.***
- Work directly with vendors to resolve software application issues that arise on nonstandard applications such as Unidata software including enhancements or bug fixes.
- Follow standard support escalation procedures for technical support needs as outlined above.
- Name primary points of contacts for technology related to the Unidata Grant project.

Outcome
Xin Zhang and DoIT management will continue to assess this agreement and evaluate potential changes required. At the end of each fiscal year, all involved parties will review this agreement and provide University management, including ***Mathematics and Computer Science*** personnel involved with the Unidata grant and DoIT management, with a recommendation for future staffing and support.

I have read the level of service outlined above and agree to its terms.



Signature

Associate Vice Chancellor of Information Resources/Chief Information Officer

Title

UNCP Division of Information Technology
UNC Pembroke

s.mohanarajah

Signature

Chair/ Mathematics & Computer Science

Title

Mathematics and Computer Science
UNC Pembroke

Version Number	Revision Date	Revision Summary
DV1	03/17/2021	Draft version

UNC CHARLOTTE
Office of OneIT

March 15th, 2021

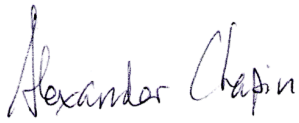
To whom it may concern:

I am writing this letter in support of the proposal entitled “Remote Collaborative Geoscience Learning through Distributed File Servers and Dedicated Web Server System” led by Professor Xin Zhang at the University of North Carolina Pembroke. This proposal is prepared for submission to the Unidata Program Center for consideration on the Unidata Community Equipment Awards. Dr. Wenwu Tang at the University of North Carolina at Charlotte (UNC Charlotte) is a co-PI of this proposal.

I am the Executive Director of the team that provides IT support for the College of Liberal Arts & Sciences at UNC Charlotte. My team oversees support for over 20 academic departments and includes staff experienced in server administration, networking, security, web application development, and high performance computing.

My team supports the IT computing architecture for the Center for Applied Geographic Information Science, directed by Dr. Wenwu Tang. If the proposed project is funded, we will provide assistance in setting up and supporting the Unidata servers that will facilitate the use of the Unidata streams for the research and teaching activities of faculty at UNC Charlotte. Please let me know if you have any questions. I look forward to supporting the servers described in this proposal.

Sincerely,



Alexander Chapin
Executive Director of the College of Liberal Arts & Sciences IT Team
Office of OneIT
UNC Charlotte
9201 University City Blvd., Charlotte, NC 28223
Phone: 704-687-0059
Email: achapin1@uncc.edu

UNC CHARLOTTE
The University of North Carolina at Charlotte
College of Liberal Arts and Sciences
9201 University City Boulevard
Charlotte, NC 28223

March 22, 2021

Xin Zhang
Associate Professor
Mathematics and Computer Science
University of North Carolina at Pembroke
1 University Drive
Pembroke, NC 28372-1510

Dear Dr. Zhang,

The University of North Carolina at Charlotte is pleased to participate in the University of North Carolina at Pembroke's upcoming proposal to the Unidata Community Equipment Award Program. Dr. Wenwu Tang will lead the portion of the project to be undertaken by UNC Charlotte. It is our understanding that if this proposal is awarded a subaward will be issued to UNC Charlotte totaling $7,954 over the proposed period of June 1, 2021 to May 31, 2022.

The appropriate programmatic and administrative personnel at UNC Charlotte are aware of this proposal and are prepared to establish the necessary inter-organizational agreement(s) should it be funded.

Sincerely,

Peter Szanton
Director, CLAS Office of Research