



# Engaging Students with Anytime, Anywhere Learning

Northern Michigan University invigorates learning and collaboration by equipping students and faculty with Ultrabook™ 2 in 1 systems powered by Intel® Core™ processors



To enhance the teaching and learning experience, Northern Michigan University (NMU) operates an innovative campuswide technology program where all students and teaching staff are issued notebook computers for use while attending the university. After evaluating several technology options to shift from just another refresh to a more transformative opportunity, the university selected Ultrabook™ 2 in 1 devices equipped with Intel® Core™ processors running Windows® 8. With a flexible design, hardware-enhanced security, strong performance, and long battery life, the new systems are empowering students and faculty to work in new ways.

## Challenges

- **Improve ease of use and versatility.** Transition to a thin, lightweight, durable 2 in 1 device with touch-screen features to meet the versatile demands of students and faculty. Depending on the usage need and personal preferences, these innovative Intel® processor-based devices can instantly transform from a tablet when wanted or a laptop when needed.
- **Increase performance and mobility.** Deliver enhanced performance and functionality to run demanding educational software while providing long battery life and reliable network access.
- **Keep technology current.** Deliver cutting-edge features that will help ensure continued productivity and reliability over the life span of the systems.

## Solution

- **Ultrabook 2 in 1 devices with Intel Core processors.** The university's IT team deployed Lenovo ThinkPad® Twist Ultrabook 2 in 1 systems equipped with Intel Core i5 processors for reliable performance and versatility.

## Technology Results

- **Robust performance.** Intel Core processors deliver the high performance needed to run the most demanding educational software, with exceptional system responsiveness, contributing to improved student engagement and more in-depth learning.
- **Extended battery life.** Intel processors help extend battery life, providing students and teachers with uninterrupted operation throughout the school day.

## Business Value

- **Improved learning outcomes.** Flexible Ultrabook 2 in 1 devices enhance student and teacher mobility and ease of use, helping to promote independent learning and student-teacher collaboration.
- **Reduced support costs.** Standardization of computers and hardware-enhanced security and manageability capabilities help ensure greater availability of devices and reduce support and repair costs.
- **Enhanced student-teacher engagement.** Students and teachers can easily shift between a tablet for consuming content to a keyboard for creating, helping to maximize productivity and improve student engagement.

Home to approximately 9,000 undergraduate and graduate students, NMU embraces technology to enhance student access, promote the development of independent learners, and encourage greater student-faculty communication and collaboration. To help achieve these goals, the university implemented a technology program that provides students, faculty, and staff with notebook computers loaded with a standard set of applications and pre-configured for connectivity to the campus Wi-Fi network.

"The beauty of mobile technology is its ability to create a rich learning and teaching environment," says Gavin Leach, vice president for finance and administration at NMU. "Students can easily communicate and collaborate with peers and instructors, and do their homework anywhere, anytime. For faculty, mobile technology presents unique opportunities to improve classroom instruction, enhancing traditional lectures, group discussions, and paper-based content."

"The new Ultrabook™ 2 in 1 devices have increased the opportunity for lectures to be more interactive, subsequently increasing the opportunity for student participation and engagement in the classroom. With the Intel® Core™ processors, teachers can easily run interactive whiteboard applications, and students have the powerful functionality and unique form factor options to turn any location into a remote classroom or study area."

– Gavin Leach,  
Vice President for Finance and Administration,  
Northern Michigan University



# Refreshing with Intel® processor-based Ultrabook systems enhances learning and teaching capabilities

Recently, the university decided to deploy a new type of system to incoming freshmen. "We had been using traditional laptops for years, but we wanted something that was thinner, lighter, and could deliver longer battery life to improve user mobility," says David Maki, NMU's chief technology officer.

Adopting touch-screen technology was also a priority. "We are on a three-year refresh cycle with these systems, so we need to make sure whatever technology choices we make today won't be outdated in three years," says Leach. "It was clear to us that the industry is moving toward touch-screen-type tablets. We wanted a way to give students and faculty touch-based capabilities as well as the flexibility to use a system as a more traditional laptop."

Finally, any new systems had to be compatible with the university's impressive WiMAX network and its forthcoming LTE network. The university's wireless network is designed to offer high-bandwidth wireless connectivity to students, faculty, and community members in the surrounding area. "Providing equal access to technology is an important goal of the program and the addition of the WiMAX network is crucial to that effort," Leach says. "The network is heavily used—in any given month, we have close to 6,000 unique accesses on the WiMAX network, and more than 2,000 continuous user connections at any given time. Any new system had to support a WiMAX card today and enable us to install an LTE adapter in the future as we transition to that new technology."

## Combined Benefits in a Single Platform

After an extensive evaluation process for its latest refresh, the IT team selected the Lenovo ThinkPad Twist Ultrabook 2 in 1 system equipped with Intel Core i5 processors. "We liked the thin, lightweight design of the ThinkPad, along with its touch-screen capabilities," Leach says. "Since it's a convertible notebook, students can use a keyboard when needed while the tablet option eliminates the physical barriers of the upright laptop screens in classroom environments."



Running the Ultrabook 2 in 1 devices with Windows 8 provides students and faculty with the full features and functionality needed for a richer, more interactive classroom. "The responsive touch-screen interface provides users with a more engaging experience as they navigate and interact with content directly on the screen," says Leach. "And since they run on Windows 8, the devices are compatible with many of the applications teachers and students already use."

The new Ultrabook systems can support WiMAX wireless technology as well as the planned LTE network. "Quick and reliable network connectivity is integral to providing an open and robust learning environment," says Leach. "Increased computing mobility enables greater flexibility in teaching and learning styles, allowing students and faculty to employ more creative approaches to improving learning outcomes."

## Driving Efficiency and Learning Transformation

Students and faculty benefit from the high-performance capabilities delivered by the Intel Core processors, including the ability to run a wide range of demanding applications. "The new Ultrabook 2 in 1 devices have increased the opportunity for lectures to be more interactive, subsequently increasing the opportunity for student participation and engagement in the classroom," Leach says. "With the Intel Core processors, teachers can easily run interactive whiteboard applications, and students have the powerful functionality and unique form factor options to turn any location into a remote classroom or study area."

Using hardware-based Intel® Virtualization Technology (Intel® VT), a feature of the Intel processors, the IT team can configure notebooks to run multiple operating systems. "If a student prefers the look and feel of Windows 7, we can set up the device with that interface, while still providing access to all of the Windows 8 applications and touch-screen capabilities," Leach says. "Some students like to experiment and use both. Now we can give them the best of both worlds."

Offering enhanced performance in classroom settings, the ThinkPad 2 in 1 device quickly transforms from a laptop to a powerful tablet with a simple twist. "The Ultrabook form factor provides superior versatility for students and

## Lessons Learned

An important goal for the NMU IT team was to capitalize on the inherent efficiencies of technology standardization. "Keeping an inventory of standard parts and identical replacement models reduces support and repair costs and streamlines troubleshooting," says Gavin Leach, vice president for finance and administration at Northern Michigan University. "If we can repair a device within an hour, we'll do it. Otherwise, we can swap the machine out and the student has the same hardware and software familiarity. The more we standardize, the more efficient and responsive we can be."

teachers who need lighter weight, long battery life, and an instant-on, always connected experience," Leach says. "Plus, the tablet option eliminates the physical barriers of the upright screens, which prevented eye contact and instructors often found distracting."

## Enhanced Versatility for Learning

Feedback from students and faculty on the latest refresh has been excellent. "The appeal of the tablet option is obvious: it's thin, lightweight, and springs to life without delay, making it much more functional to use in class than a laptop or notebook," Leach says. "And the longer battery life means students don't have to worry about carrying a charger with them. For a laptop of this size, it's the lightest one we've handed out—and based on the feedback, the most well-received one."

The transition to Intel-powered 2 in 1 devices is offering teachers and students a more versatile computing experience. With the elevated ease for interactivity in the classroom, students are challenged to problem-solve and then project their solutions for class discussion and critique. Because it's a 2 in 1 device, students can use a keyboard when needed, making it an ideal solution for all of their computing needs.

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Battery Life: measured using: MobileMark™ 2012 Office Productivity on Intel® Core™ i5-4200U processor-based OEM system, Intel® Core™ i5-3317U processor-based OEM system, and Intel® Core™2 Duo processor P8600-based OEM system. Performance rating=115 for latest Ultrabook™ vs. 108 for prior gen. vs. 80 for old PC. Battery size normalized to 50Whr.

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