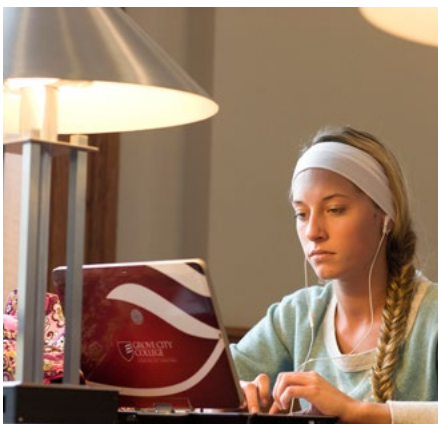


# Enhancing Academic Mobility

Intel® Core™ i7 vPro™ processors and Intel® Solid-State Drives help Grove City College deliver strong tablet performance, flexibility, and security



“With previous tablets, we experienced a hard drive failure rate of approximately 5 percent. With Intel® SSDs, we have seen rates as low as 0.5 percent over the year. Students and faculty are less likely to lose data or suffer downtime. Fewer failures also mean that our IT staff spends less time servicing tablets and more time on other projects.”

—Vincent DiStasi,  
Chief Information Officer,  
Grove City College

Dedicated to using technology to enhance the academic experience, Pennsylvania’s Grove City College provides incoming freshmen and full-time faculty with new laptop computers. The currently distributed HP EliteBook® Revolve 810 tablet computers, which run the Microsoft Windows® 8 operating system and are equipped with Intel® Core™ i7 vPro™ processors, deliver a range of benefits for users and IT. The thin, lightweight tablets feature a convertible design that enhances mobile flexibility while the Intel processors and Intel® Solid-State Drives (Intel® SSDs) deliver outstanding application performance. Intel SSDs also help reduce drive failures by at least 90 percent. Intel® Anti-Theft Technology (Intel® AT) helps deter theft and protect information.

## Challenges

- **Maximize flexibility and mobile productivity.** Provide highly portable computers that allow students and faculty to work anytime, anywhere, and in any way they choose.
- **Deliver robust performance.** Enable students and faculty to run rigorous applications and use interactive classroom technologies.
- **Reduce hardware failures.** Avoid hard drive failures that can interrupt productivity, result in the loss of student or faculty work, and strain IT support resources.
- **Secure information.** Deter theft, prevent unauthorized access to sensitive information if laptops are lost or stolen, and recover assets and data when possible.

## Solution

- **HP EliteBook tablets with Intel Core i7 vPro processors, Intel SSDs, and Intel AT.** Grove City College currently deploys HP EliteBook Revolve 810 tablet computers equipped with Intel SSDs, using Intel AT built into Intel Core i7 vPro processors. The computers run a wide range of applications on the Microsoft Windows 8 operating system.

## Technology Results

- **Better performance.** Students and faculty can boot up rapidly and achieve outstanding performance for a wide range of demanding applications.
- **Improved productivity.** Intel SSDs helped decrease hard drive failures by at least 90 percent compared with previous disk drives, allowing users to remain productive and avoid the loss of work while reducing the time the IT group spends on repairs.
- **Faster deployment.** Using Intel SSDs, the Grove City College IT group can image and re-image tablets in half the time required for systems with hard disk drives.
- **Protected information.** Intel AT with the Absolute Software Computrace® solution enables Grove City College to deter thefts, lock down lost or stolen computers, and recover computers and data.

# Intel Core vPro processors deliver outstanding performance while Intel SSDs reduce hardware failures



## Business Value

- **Increased mobile productivity.** By combining strong performance, reliability, and long battery life in a lightweight tablet, the new computers help students and faculty stay productive all day long, in class and beyond.
- **Improved flexibility.** With new tablets powered by Intel Core i7 vPro processors and Windows 8, students and faculty gain the flexibility to work in a touch-based environment or a traditional desktop environment that runs a full array of applications.
- **Interactive learning.** Outstanding performance helps faculty and students participate in a range of interactive tasks—from in-class engineering simulations to videoconferencing—that enhance the academic experience.



Grove City College's laptop program places new computers in the hands of all incoming freshmen. For several years, the IT group has deployed lightweight, easy-to-use tablets to improve student mobility. Students use tablets to take handwritten notes in lectures, collect data in science labs, run engineering simulations in class, write papers in the library, and communicate with professors through videoconferencing from their dorm rooms. Professors also receive tablets, which they use for everything from delivering presentations to managing high-performance computing workloads.

In selecting tablets for distribution, the Grove City College IT group must enable mobility without sacrificing performance. "Our students and faculty need powerful machines that can handle engineering, statistics, and multimedia applications as well as standard productivity software," says Vincent DiStasi, chief information officer and associate professor of chemistry at Grove City College.

To minimize downtime and costly repairs, the college also requires rugged, reliable systems. "Students can be rough with computers, and in the past, we frequently saw hard disk drive failures," says DiStasi. "Drive failures can be devastating to users if they lose work. We wanted to reduce those problems and the time spent on repairs."

At the same time, the college needs systems it can protect from theft and data loss. "This is a safe campus, but computer theft rose when we started offering tablets," says DiStasi. "In the event of a theft, we need to prevent unauthorized users from accessing sensitive data, such as a student's personal information or a professor's grading chart."

## Convertible Tablet and Windows 8 Maximize Flexibility

Working with All Lines Technology, an HP Enterprise Elite Partner, the college currently distributes HP EliteBook Revolve 810 tablets to incoming freshman and full-time faculty who are due for a new computer. These thin, lightweight tablets, equipped with Intel Core i7 vPro processors, combine a touch screen with a full keyboard so users can easily move between a touch-based tablet experience and a more traditional laptop experience, depending on their needs. "Students and faculty can work the way they want to at any particular moment," says DiStasi. "They can navigate with 10-point touch, draw a diagram with a stylus, or type a paper on a keyboard—all on the same device. It's not an either/or decision anymore."

The IT group has installed Microsoft Windows 8 on the new tablets and has seamlessly upgraded numerous computers already in use on campus. “We have heard very positive feedback about Windows 8 from students and faculty,” says DiStasi. “Users who migrated from the previous operating system report that Windows 8 performs better than Windows 7 on the same hardware.”

For Grove City College students and faculty, Windows 8 is the perfect match for the new tablets. Together, the operating system and tablets provide a no-compromise approach to productivity. “Windows 8 definitely enhances the touch experience, but it doesn’t require touch,” says DiStasi. “Users can enjoy the benefits of a touch-based tablet experience when they want to and still maintain the ability to use a keyboard and run all of their Windows-based applications in a more traditional laptop or desktop environment.”

Since the inception of the laptop program, Grove City College has embraced new technologies, such as touch-based computing, to help enhance flexibility, increase productivity, and prepare users for the future. “With the previous operating system and tablets, we had two points of touch—today we have 10,” says DiStasi. “We anticipate that future computers will use gesture-based technologies like some of today’s gaming products. A faculty member or student could give a presentation using gestures only. By staying on the cutting edge of these computing modalities, we can help prepare our users to capitalize on whatever is next.”

## Intel Core i7 vPro Processors and Intel SSDs Boost Tablet Performance

The Grove City College IT group decided to equip the new tablets with Intel Core i7 vPro processors and Intel SSD 500 Series drives to maximize performance for the wide range of applications that

faculty and students run. “The Intel Core i7 vPro processors and Intel SSDs give students and faculty the performance they need to run complex engineering simulations during class time, provide interactive classroom presentations, conduct videoconferencing, and more,” says DiStasi.

It was the performance of Intel SSDs, along with their reliability, that led the IT group to select these drives over drives from competing vendors. “The performance of the Intel SSDs is really outstanding,” says DiStasi. “Even if other drives were to offer greater capacity or a lower unit cost, we would always choose Intel.”

The Intel® processors and Intel SSDs also deliver strong investment protection over the four years that each tablet is in use by helping avoid the need for upgrades. “We realize that performance requirements can easily change over four years. For example, an engineering student might need to run much larger models as a senior than as a freshman,” says DiStasi. “By selecting tablets with these Intel technologies, we gain the headroom for new applications and needs that might emerge.”

Students and faculty are reminded of the performance advantages of these tablets each time they boot up. “With traditional hard disk drives, it might take a machine up to five minutes to boot,” says DiStasi. “With Intel SSDs, it takes only 12 seconds to reach the login screen. Faculty members avoid wasting precious class time, and students are ready to take notes right away.”

Over the course of the day, the Intel SSDs help provide long battery life. “Students take their tablets with them everywhere, and they expect to keep on using those tablets even when they’re not close to a power outlet,” says DiStasi. “By reducing power consumption, the Intel SSDs help provide the all-day battery life that users have come to expect from mobile devices.”

## Lessons Learned

“Many students and faculty are comfortable with technology today, but they still need guidance on how to take full advantage of it,” says Grove City College’s Vincent DiStasi. “We now provide workshops at the beginning of the year to help users learn more about their tablets’ capabilities. We’ve found that the workshops help provide a better user experience while alleviating many help-desk requests.”

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## Grove City College Reduces Drive Failures by at Least 90 Percent with Intel SSDs

In addition to improving performance and battery life, the Intel SSDs help enhance reliability. Grove City College has distributed tablets equipped with Intel SSDs for several years to reduce the likelihood of drive failures. "With previous tablets, we experienced a hard drive failure rate of approximately 5 percent," says DiStasi. "With Intel SSDs, we have seen rates as low as 0.5 percent over the year. Students and faculty are less likely to lose data or suffer downtime. Fewer failures also mean that our IT staff spends less time servicing tablets and more time on other projects."

## Increased Performance Cuts System Imaging Time in Half

By delivering better performance than traditional hard disk drives, Intel SSDs accelerate system imaging. "In the past, it took an hour and a half to load each system image," says DiStasi. "Now we can load the image in less than 45 minutes. When we are re-imaging systems after repairs, we can return systems to students and faculty much faster."

Accelerated imaging helps the IT group prepare each year's fleet of tablets rapidly. "Some years we only have a few days between the arrival of new tablets and the start of school," says DiStasi.

"Fortunately, the performance of the Intel SSDs enables us to image all 800 tablets in just two days. We can have systems ready in time, and we don't have to spend the summer loading software."

## Intel AT Locks Down Tablets

To protect sensitive information stored on and accessed from the tablets, the Grove City College team capitalizes on the Intel AT available with the Intel Core i7 vPro processors in conjunction with the Absolute Software Computrace solution. If a tablet is lost or stolen, the IT group issues a poison pill that prevents the tablet from booting. The Absolute theft recovery team can then pinpoint the computer's location and work with the police to recover it.

"Intel AT offers us a simple and effective way to protect assets and secure information," says DiStasi. "It just makes sense to take full advantage of the capabilities that are built into the Intel processors."

The new approach to protecting tablets also deters theft. "We widely publicize these features," says DiStasi. "We have gone from more than 10 tablet thefts in a single year to zero."

## Intel vPro Platform Streamlines Management for Mobile Computing

Looking ahead, the Grove City College IT group is planning to activate additional processor capabilities, including the Intel vPro platform. "As we offer more online

courses for our students, we will need new ways to support users who are located off campus," says DiStasi. "Intel vPro technology will allow us to diagnose problems, resolve issues, and update systems remotely, so we can reduce downtime and deliver the latest software to students and faculty wherever they are. These capabilities, combined with the security and management capabilities built into Windows 8, will help us deliver the most robust and reliable mobile computing experience possible."

## Intel® Wireless Display (Intel® WiDi) Enhances Interactive Learning

The Grove City College IT group is also exploring ways to incorporate Intel® WiDi in the future. "With Intel WiDi, we'll be able to allow faculty and students to stream presentations or videos from their tablets to a classroom screen. The new tablets are already equipped with Intel WiDi, and we're currently investigating solutions for integrating that technology with projectors or other screens," says DiStasi. "We anticipate that Intel WiDi will be another important tool for delivering an engaging, interactive classroom experience."

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