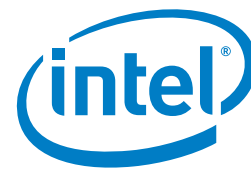


## CASE STUDY

Intel® Modular Server powered by  
Intel® Xeon® processor 5500 series  
Enterprise Server



# Education with virtualisation

## Leading high school boosts IT capabilities with Intel® technology

Broadgreen International School is dedicated to setting the standard for 21st century education. Accommodating students aged from 11 to 18 in Liverpool, England, over the last few years, it has invested heavily in updating and upgrading its facilities. These include a state-of-the-art technology centre, a new drama studio and even an on-site bistro.



"We now have a really impressive IT platform that will help keep Broadgreen at the forefront of technology use in the education community."

Brian Hayes,  
Network Manager,  
Broadgreen International School

### CHALLENGES

- **Reduce power use.** Ageing servers posed a constant threat of overheating, demanding heavy use of air conditioning to keep them cool
- **Boost performance.** Feedback from students and teachers showed that the IT platform was often slow to respond to user needs
- **Enhance manageability.** Fragmented server fleet could not be administered easily, resulting in underutilisation and inefficiency

### SOLUTIONS

- **Consolidate.** Intel® Modular Server modules powered by Intel® Xeon® processors 5500 series can handle more demand with greater performance, meaning less hardware is required
- **Simplify.** Modular, out-of-the-box server architecture makes installation and management smooth and quick while offering shared storage, backup, and networking in one place
- **Virtualise.** Making use of virtualisation features of Microsoft Windows Server® 2008 and Hyper-V means fleet can be managed more effectively, minimising wasted resource

### IMPACT

- **Cooler servers.** Better efficiency and reduced risk of overheating guarantee improved system performance and availability along with up to 85 per cent lower power and cooling requirements
- **Scalability for growth.** New virtual platform provides greater capacity and flexibility to support ongoing increase in user data and activity
- **Financial benefits.** Easier manageability and cost savings from energy efficiency means the school can anticipate 148 per cent ROI over four years<sup>1</sup>

### Increasing IT use

Equipping its students with the knowledge and skills to make the most of their futures is very important to Broadgreen International School. To do this, however, it needs to ensure the resources it offers are of the highest standard. As students become increasingly tech-savvy at a younger age, the amount of school work done on computers as opposed to in text books is increasing, so effective IT capabilities are a key priority.

"Our students and teachers rely heavily on electronic information and content," says Brian Hayes, network manager, Broadgreen International School. "They use a variety of administrative and Microsoft Office® applications as well as generating a lot of multimedia content. Gigabyte-sized video files are not uncommon and many people are surprised to learn that we have more data to handle than some small businesses."

The school's IT environment was supported by a fleet of 12 servers that had been acquired ad hoc over a number of years. A number of servers were being used to support one application each, and many were reaching the end of their lifecycles. "We'd suffered downtime due to servers overheating, and even when running, the system's performance was slow," Hayes explains. "On top of that, we were reaching the limit of our storage capacity and were unable to allocate resources efficiently due to the fragmented nature of our environment." Unwilling to delete students' work to create more capacity, Broadgreen wanted to improve the manageability of its server fleet while boosting its capabilities and performance.

<sup>1</sup> Based on evaluation carried out using the Intel Xeon processor-based Server Refresh Savings Estimator, visit [www.intel.com/go/xeonestimator](http://www.intel.com/go/xeonestimator)



## Dramatic cost savings made possible for school with power efficient Intel® Xeon® processor 5500 series

### Varied requirements

The school asked Intel to help with a solution to this mix of challenges. "As an educational organisation with limited IT budget, we wanted a cost effective solution but we also wanted the peace of mind that comes from working with industry experts," says Hayes. "We were confident Intel could meet these requirements."

Working with local solution provider Universal Technologies, Intel proposed the school consolidate its server environment onto fewer, more powerful machines, using virtualisation. This was not a technology Broadgreen had used before, so Intel worked with the school to estimate the potential return on investment it could expect, using the Intel Server Refresh ROI Calculator<sup>2</sup>. By deploying a modular server equipped with Intel® Xeon® processor 5500 series-powered modules and using virtualisation, the Calculator showed that the school could expect a range of benefits:

- An initial investment of £14,371 could yield a 148 per cent ROI over four years.
- The school's utilised performance was projected to increase by about 53 per cent at a 68.3 per cent lower total cost of ownership.
- Power and cooling requirements of the school's new environment would be around 85 per cent lower, reducing its annual power consumption by 98,112 kWh. This translates to a 84 per cent reduction of CO2 emissions, the "green" equivalent of removing 7.6 cars from the road.

Once the decision to deploy the solution had been made, Universal Technologies managed the implementation of an Intel Modular server populated with three modules powered by Intel Xeon processors 5500 series and running Microsoft Windows Server\* 2008 with virtualisation capabilities. Added to two recently purchased servers that were retained, this enabled the school to consolidate its fleet from 12 to five, with plans to consolidate further as the extra servers came to the end of their lifecycle. "We were very impressed with the speed of the deployment," comments Hayes. "It took less than an hour to virtualise a server, and the simple-to-manage, flexible modular solution meant we were up and running very fast."

### Set for the future

Hayes and his team saw significant improvements almost immediately. With the improved system performance, staff and students now enjoy a fully responsive IT environment with little or no downtime. "We used to receive complaints about slow response time from users, but since deploying the new platform we've had none," comments Hayes.

While performance has increased, the power consumed and heat generated have been cut thanks to the enhanced energy efficiency of the Intel Xeon processor 5500 series. "During the evaluation stage of this project, Intel showed us that the new processor are less likely to overheat even if the air conditioning fails, so this gives us great peace of mind that we won't have a repeat of previous failures that were caused by overheating," Hayes explains.

### Spotlight on Broadgreen International School

The school is committed to building its reputation at an international level, and acts as a UK showcase for the International Baccalaureate programme, while forging strong links with schools in Scandinavia, France, the USA and India.

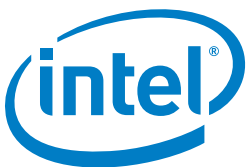
Its proactive approach to IT use has recently been recognised by BETCA which named it number one school for the best use of technology at the ICT Excellence Awards in November 2009.

The school has 1230 pupils on role with a teaching staff of 120.

The move to the more compact modular fleet means that space is saved in the school's server room, and the remaining servers are much easier to manage for the IT team, which uses a central console to allocate resources simply and quickly. Capacity is no longer an issue, as the support for over 6TB of storage available on the new platform is easily manageable and expected to last at least another year.

Hayes concludes: "The modular solution provided by Intel is perfectly tailored to our requirements as a school. It's cost effective, adaptable and easy to manage, in line with our need to stay agile to meet student and teacher needs. At the same time though, it delivers the reliability, processing power and energy efficiency of an enterprise-class system. We've got the best of both worlds."

Find a solution that is right for your organisation. Contact your Intel representative or visit the Reference Room at [www.intel.com/references](http://www.intel.com/references).



<sup>2</sup> To find out more about the Intel Xeon processor-based Server Refresh Savings Estimator, visit [www.intel.com/go/xeonestimator](http://www.intel.com/go/xeonestimator)