



White Paper

OPS Digital Signage Player Helps Accelerate Technology Rollout and Tap New Turf

The beauty of digital signage is the ability to deliver right message to the right audience. To realize this ambitious goal, digital signage needs new technologies and needs it fast. To answer this need, NEXCOM has developed a digital signage player, the NDiS M532, which follows the Open Pluggable Specification (OPS), supports 3rd generation Intel® Core™ processors, and integrates Intel® Active Management Technology (Intel® AMT).

In this white paper, we explain how OPS accelerates technology roll-out and simplifies digital signage deployment; how the powerful mixture of 3D graphics, HD media processing, and computing performance of the 3rd generation Intel Core processors answers technology needs; and how Intel AMT technology facilitates post-implementation operation and maintenance of digital signage. We also show how the M532 OPS digital

signage player based on the latest Intel® platform technology providing all these capabilities can benefit a wide range of applications.

Standardized OPS Module Facilitates System Deployment

Frequently, the best displays are not bundled with the best digital signage players. This can keep a digital signage system from taking advantage of the best technology. There can also be hardware interoperability issues. The Open Pluggable Specification was created to help solve both these issues.

The OPS approach is to standardize the electrical and mechanical specifications for displays and players. It allows system integrators (SIs) to pair an OPS-compliant panel with an OPS-compliant player from

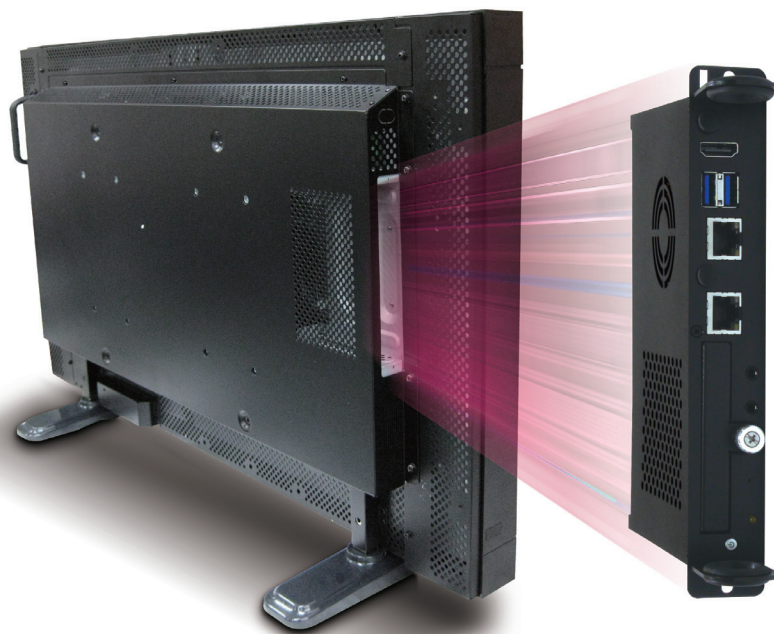


Figure 1. An OPS-compliant player is a pluggable module which removes hardware incompatibility and streamlines system deployment, spurring greater use of digital signage.

different vendors without worrying the issue of incompatibility. If occasion arises for player upgrade, SIs can always choose another OPS-compliant player from the market that best meets application requirements and budget constraints.

Mounting standalone players onto the back of displays is common on suspended digital signage systems. However, installing and maintaining can be arduous. Mounting the player, hanging the display, connecting and fixing the cables all take time and effort. Future system maintenance and upgrade can demand twice the commitment since the player cannot be dismantled and replaced before the display is taken down.

By contrast, deployment is made easy with OPS. An OPS-compliant player coming with one 80-pin JAE connector is essentially a pluggable module that can be slotted into and powered by an OPS display. The modular design eliminates the need of display and power cables and saves a great deal of the effort that goes into installation and maintenance. And system malfunctions resulting from loose connections can also be prevented.

By removing hardware incompatibility and streamlining system deployment, OPS can spur greater use of pluggable players. Projection imaging systems in museum, videoconferencing AV systems in auditorium, smart whiteboards in classroom and large display walls in stadium are new turfs a pluggable player can set its foot in.

Graphics Lies at the Core

The pursuit of stunning and vivid display of images and videos calls for high performance digital signage players. Vying for viewers' attention, digital signage content is increasingly embracing the animation and special effects extensively used in video games. Add to that the relentless pursuit of high definition playback, and it's easy to see how a player is put to a stringent test and requires an outstanding graphics engine.



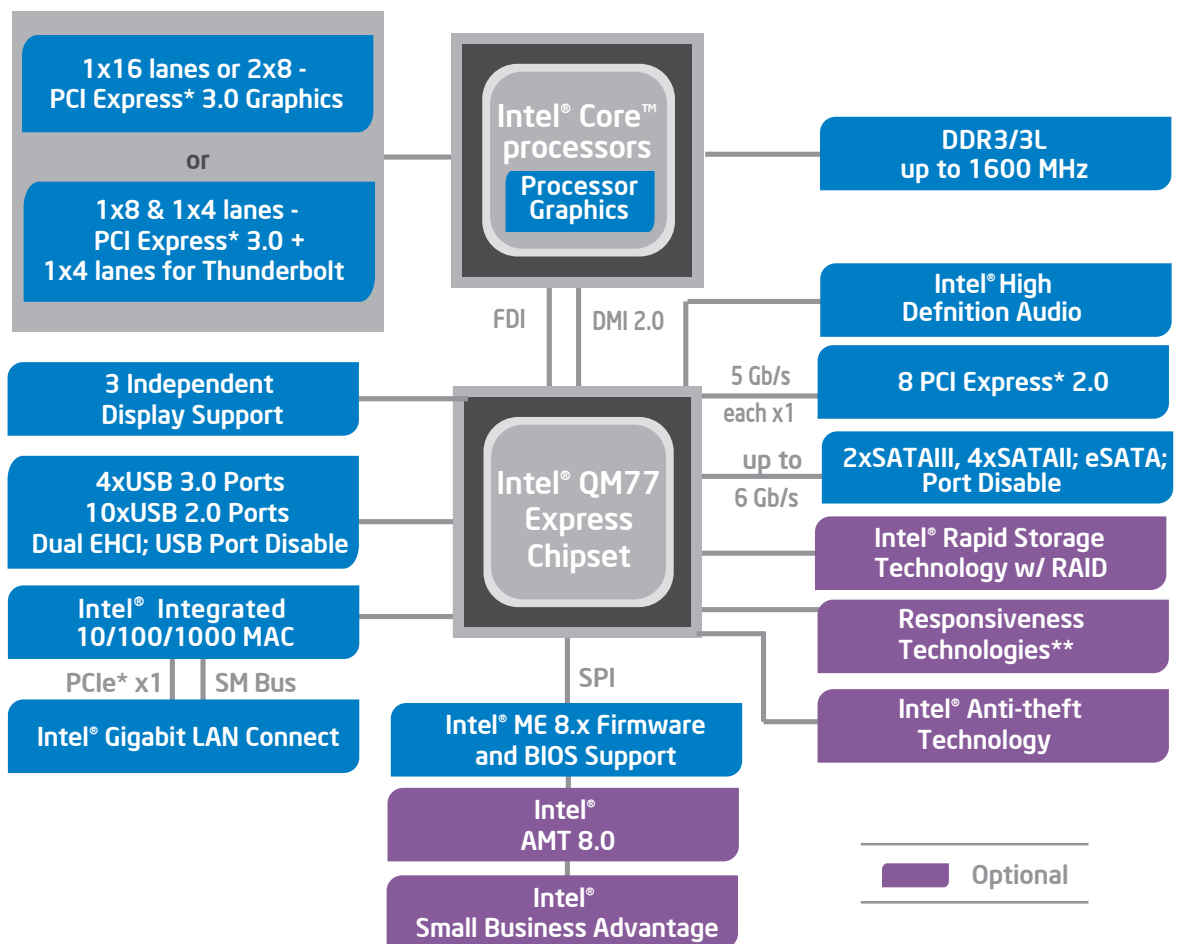
Figure 2. The pursuit of stunning and vivid display of images and video calls for high performance digital signage players.

Based on the 22nm technology, the graphics engine integrated in the 3rd generation Intel Core processors compete well with mainstream graphics cards. The Intel® HD Graphics 4000 includes a new 3D graphics engine, Intel® Quick Sync Video technology, and support for DirectX 11. It is so powerful that it can handle sophisticated graphics processing and video decoding without relying on discrete hardware accelerators or computing cores.

Used in the digital signage player M532, the Intel HD Graphics 4000 can yield substantial

benefits in terms of reduced hardware cost, smaller form factor, and lower power consumption since a discrete graphics card is no longer required. In addition, the graphics performance improvement means a more efficient computing resources allocation, leaving computing cores to perform tasks such as anonymous viewer analysis (AVA), a computing-intensive application.

In the retailer industry, AVA has generated genuine interests for its ability to enable a digital signage system to deliver right message to right audience. By means of computer vision and video analysis techniques, a digital signage system is capable of displaying customized contents based on the result of audience measurement to increase the impact of marketing communication.



Supporting several processors in the 3rd generation Intel Core processor family, the M532 can accommodate different levels of computing power requirements in assorted application scenarios while smoothly displaying immersive stunning visuals through its Intel HD Graphics 4000.

Intel® Active Management Technology for Easy Management

Most remote management tools are only capable of software-level monitoring and control. As a result, they can leave digital

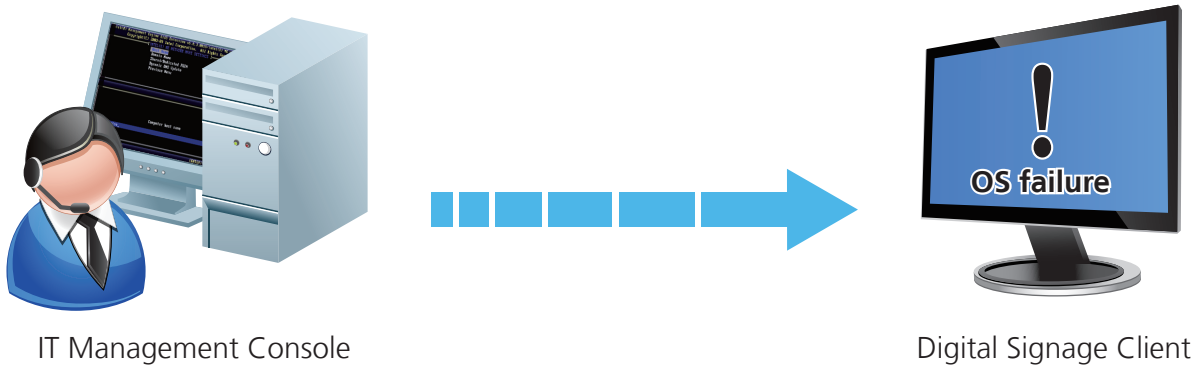


Figure 3. Intel AMT allows IT to remotely remediate and recover systems after OS failures.

signage players down for a long time if the root cause of system failure lies in the hardware, firmware and operating system and requires a technician onsite. Intel AMT provides a better solution through out-of-band access, hardware status check and remote Keyboard-Video-Mouse (KVM) control, and other features. These can reduce system downtime, minimize on-site visits, and improve hardware management.

Out-of-band access gives technicians more control over a digital signage player, making remote recovery possible even after OS crashes. If a player is down because of hardware failure, a hardware status check allows technicians to pinpoint a defective component from afar and have it replaced in one field trip.

Better still, the hardware status check gives technicians an opportunity to prevent a dysfunction fiasco. They can use it to detect potential hardware failures and respond before the failures happen. What's more, the remote KVM control enables technicians to see what is displayed on the local monitor. This can enable them to perform remote maintenance.

It can also be used to provide proof of play on advertisements and other content.

As long as a player is powered and connected, managing a worldwide digital signage network or a network deployed in countries with high labor cost, can be both more cost-effective and time-saving. As network connectivity varies from place to place, the M532 with its support for WWAN, WLAN and LAN connections is nothing if not adaptive and ready to connect.

Conclusion

OPS, 3rd generation Intel Core processors and Intel AMT all address different problems. However, the combination of these three elements in an OPS-compliant player like the M532 enables digital signage systems to enhance marketing impact by quickly delivering higher quality graphics and greater computing power, enabling SIs to tap new markets and customers through easier deployment. A standardized and pluggable player with Intel AMT also helps reduce system downtime to a minimum by simplifying onsite maintenance and enabling remote diagnosis.

About NEXCOM

NEXCOM International Co Ltd. is an Associate Member of the Intel® Intelligent Systems Alliance. Founded in 1992 and headquartered in Taipei, Taiwan, NEXCOM is committed to being your trustworthy partner in building the digital infrastructure. NEXCOM offers innovative and versatile industrial computing solutions and security surveillance applications built around industry leading technology, localized customer support and worldwide logistic services.

About the Intel® Intelligent Systems Alliance

From modular components to market-ready systems, Intel and the 200+ global member companies of the Intel® Intelligent Systems Alliance provide the performance, connectivity, manageability, and security developers need to create smart, connected systems. Close collaboration with Intel and each other enables Alliance members to innovate with the latest technologies, helping developers deliver first-in-market solutions.

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