

# » Whitepaper «



## Media-Rich Digital Signage Design Simplified by OPS Standards-based Evaluation Kit

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New emerging screen technologies are exciting when one considers the possibilities of displaying compelling content on polygon and hexagon screens, concave and convex walls. The visual displays of messaging can now go so far beyond the flat rectangular formats of yesterday in capturing a viewer's attention and delivering engaging content. Yet, basic design resources and tools that allow for cost-effective digital signage development and deployment often lag the latest technologies hype that has led to expensive and time-consuming integration headaches. The need for the signage developer to solve similar problems again and again as new hardware is reviewed or deployed painfully reveals why deployment costs have increased and the overall fragmentation in the marketplace. OEMs developing digital signage for the Infotainment, Retail, Vending and Transportation markets need standards to ease their workload and that will allow them to focus on reducing total cost of ownership (TCO) and return on investment (ROI) while obtaining the edge to differentiate their solutions from the competition.

Impacting digital signage designs is that viewer expectations today demand that digital-out-of-home (DOOH) signage deliver a media-rich experience for information and retail systems regardless of environment—whether the viewer is waiting, buying or in transit. Another important factor for OEMs is there is expected to be an explosion of retrofits to discrete legacy systems worldwide as the newer technologies of gesture interaction, social media interaction and flexible screens are implemented in intelligent and connected devices. That is because businesses understand that access to actionable business data can be gathered from customers of digital signage so they can make more intelligent decisions to significantly increase company profitability by targeting content to the viewer.

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## De-Fragmenting the Digital Signage Market with Open Pluggable Specification

An effective standard helps defragment the technologies in play by making the integration of computing hardware and software an easier, more cost-effective development process that maintains technology investments from one generation or platform to the next. A standard for digital signage applications is clearly needed to eliminate the integration issues between the computing engine and the display.

Intel® created the open pluggable specification (OPS) to help standardize the design and development of digital signage devices and pluggable media players. OPS is an open standard solution that addresses digital signage market fragmentation that provides a standard to simplify device installation, usage, maintenance and upgrades. It also enables digital signage manufacturers to implement scalable applications that can network easily with other equipment and deploy interchangeable systems faster and in higher volumes, while lowering costs for development and implementation. The new specification is only the first step to help the digital signage marketplace, since OPS-supported hardware needs to become readily available before the fragmentation and integration issues can be eliminated.



DSEK-12 using Kontron OPS-compliant media player KOPS800

## Enhanced Evaluation Kit Further Simplifies Development

In 2010, Intel® created the Digital Signage Evaluation Kit (DSEK) as a comprehensive and valuable resource to help designers simplify development, reduce implementation costs and speed time-to-market of a wide variety of enhanced functionality and graphics-intensive digital signage. Now the third-generation DSEK-12 evaluation kit is available and is the first to support the OPS. The DSEK-12 is pre-loaded with key software and includes evaluation licenses enabling developers to focus on application-specific software development. Making the kit a deployable media player foundation, it uses

the modular Kontron OPS-compliant media player KOPS800 system. In addition, the DSEK-12 also provides real-world content-creation/content management software from leading independent software vendors (ISVs) that give developers the assurance to implement the pre-validated OS, security, management and audience impression suites. All software included in the DSEK-12 is available for an 180-day evaluation with "click through" licenses that eliminate the need to locate, gather and load software while using the evaluation kit giving OEMs the ability to quickly jumpstart application development.

Using the DSEK-12 reduces the risk of integration issues and increases the design flexibility for screen options because it works with both OPS supported or non-OPS supported displays, and without external cables and interconnects between the media player and screen. The kit includes cables, a power supply for the independent Kontron media player KOPS800 operation and quick-start documentation, as well as a VESA mountable wrapper. There is an attached/detachable docking box with a daughter board that allows display interface connectivity for non-OPS-compliant displays. The docking box supports Display Port, HDMI and VGA accessibility, and it supplies power to the Kontron OPS-compliant media player KOPS800. The feature set of the DSEK-12 means that screen platform planning is no longer limited by technology fragmentation.



Kontron computer-on-module COMe-bIP6

## The Basis for an Effective Evaluation Environment: The Kontron Media Player KOPS800

Kontron, in collaboration with Intel® and Microsoft®, has pre-validated all the core hardware and OS elements needed for efficient development of media-rich digital signage platforms. The DSEK-12 provides a base media player evaluation environment that leverages the capabilities of modular Kontron OPS-compliant media player KOPS800 to make development of digital signage solutions quicker and easier.

The modular Kontron OPS-compliant media player KOPS800 that has at its core a Kontron COMe-bIP6, which delivers a proven Computer-on-Module (COM) high performance COM Express standard-based solution that provides high-end graphics and display support features. The Kontron media player KOPS800 is powered by the 3rd generation Intel® Core™ i5/i7 processor architecture featuring up to 2x 2.7GHz processors that are manufactured on industry-leading 22nm process technology with 3-D Tri-Gate transistors. These are the highest performing Intel Core processors to date that also deliver even more power-efficiency. Additionally, the improved integrated graphics engine and new features such as Intel® Clear Video HD Technology provide richer 3D details at higher resolutions to meet the needs of graphics-intensive digital signage applications. Kontron COM Express modules provide a total solution in terms of processing/performance and COM scalability. Kontron has optimized its OPS-compliant media player to leverage the combined powerful benefits of the Kontron COMe-bIP6 module with the Intel® Core i5/i7 processor and Mobile Intel® QM77 Express chipset with integrated graphics support.



## Easing Both Design Implementation and Overall Signage Development

It is possible to begin digital signage solution development within minutes of opening the DSEK-12 evaluation kit. Signage developers can immediately focus on prototyping the application because the DSEK-12 combines and pre-validates the computing hardware and software to work together. The DSEK-12 brings down cost of development by allowing development display flexibility, eliminating the need to purchase a more expensive OPS display for development purposes—a low-cost screen will work. When the application is ready to deploy, developers can select from a wide array of screen options to flaunt the application's features to the fullest. If the screen option selected does not support OPS, the media player in the DSEK-12 chassis will provide the support for the stand-alone media player. If the screen supports OPS, then the Kontron OPS-compliant media player KOPS800 can be used as an integrated media player. Either way, the options of screen choices are limitless because integration has been greatly eased with the DSEK-12.

Pre-loaded and pre-validated software on the Kontron OPS-compliant media player KOPS800 further streamlines application development. The developer will have the option to use 180 day evaluation license of either Microsoft® Windows Embedded Standard 7 (WES7 Professional, 64-bit) or Microsoft® Windows Embedded POSReady 7 to build run-time OS images that are optimized for digital signage applications. The kit also includes pre-loaded Content Creation from Flypaper™ and Content Management Software (CMS) from Scala® as well as the Intel® AIM Suite to screen viewer analytics and Intel® vPro™ Technology for improved platform management.

## Content Creation & Management Software Compatibility and Configuration

Flypaper and Scala software has been pre-tested with various hardware combinations in the kit to ensure compatibility and pre-configuration, which reduces risk and speeds time-to-market for OEM signage developers. The DSEK-12 also includes a 180-day evaluation period license of Flypaper and Scala software and permits usage of both software suites.

### Flypaper™



Incredible Content, Incredibly Easy: Flypaper content creation software enables anyone at any skill level to generate dynamic Flash, multi-touch, interactive and motion graphics content for digital signage networks. Create stunning content in Flypaper, without the need for programming skills, big budgets or long production schedules. A 180-day evaluation license of Flypaper software has been pre-loaded on the Kontron OPS-compliant media player KOPS800 in the DSEK-12 along with the Microsoft® Embedded POSReady 7 OS and Intel AIM Suite.

Flypaper operates in a drag-and-drop WYSIWYG editor to boost development productivity. Agencies, vendors, programmers and non-programmers alike are empowered to create, manage, publish and track high-impact content for signage networks.

Flypaper contains countless elements needed to create impactful content, including themes, templates, images, videos, audio files, Flash animations and more. Flypaper outputs projects to HD motion graphics video formats and Flash files to work seamlessly with scheduling systems and media players for digital signage success.

Flypaper Studio, Inc. is a wholly-owned subsidiary of Trivantis® Corporation, and is the developer of Flypaper, the leading Flash content creation platform. Users benefit from hundreds of available templates and Flash animation components, or can create their own content quickly and easily—with no prior programming experience required. Flypaper is robust and feature-rich, yet easy-to-learn and highly intuitive. For more information, visit [www.flypaper.com](http://www.flypaper.com).

Scala®

## SCALA

Pre-configured Player Software: Scala digital signage software makes it easy to develop and deliver bold content that commands attention by tapping the advanced computing performance, and enhanced media and graphics capabilities of the DSEK-12. Scala has certified the DSEK-12 as a Scala Player with Scala software pre-tested to ensuring optimal performance for display manufacturers, systems integrators, software developers and digital signage users.

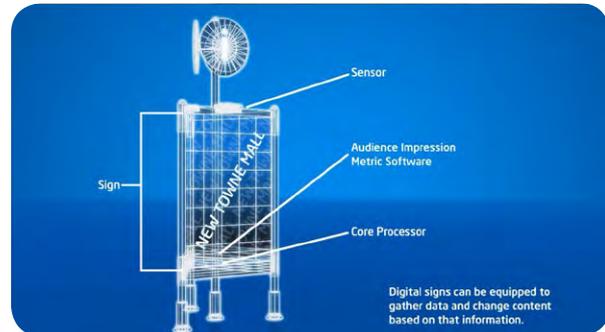
Scala software fully leverages the latest, 3rd generation Intel Core processors in the DSEK-12 to produce and display visually stunning, broadcast-quality content in implementations ranging from a small number of screens to thousands of displays in a global network. The Kontron OPS-compliant media player KOPS800 in the DSEK-12 has Scala® Player preloaded and ready to be connected to Scala® Content Manager, using the Microsoft Windows Embedded Standard 7 OS. Scala Content Manager has been pre-populated with media which will allow you to explore many of the out of the box features. Scala® Enterprise is the right software suite that empowers companies to achieve professional, timely, consistent and cost effective communication that Commands Attention<sup>SM</sup>.

Driving more than 500,000 screens worldwide, Scala Inc. is a leading global provider of digital signage. Scala is the world's first connected signage company, offering the leading platforms for content creation, management and distribution in digital signage networks and the first unified platform for advertising management of both traditional and digital signage networks. Scala, Inc. is a global provider of digital communications software. Founded in 1987, our headquarters are based near Philadelphia, Pennsylvania with additional operations in California, Brazil, United Kingdom, Germany, Sweden, Norway, the Netherlands, Denmark, India, and Japan. Our multimedia software platform powers thousands of digital communications solutions around the world including the digital communications and signage networks of some of the world's most successful companies including: Rabobank, IKEA, Bloomberg Television, Burger King, T-Mobile, Virgin Megastores, Disneyland Resort Paris, McDonald's, Warner Bros., Shell, Esso, Ericsson, Rikstoto and IBC-13. For more information, visit: <http://www.scala.com/> or the Scala blog. Connect with Scala via Twitter, Facebook and LinkedIn.

### Intel® AIM Suite Delivers Vital Audience Impression Measurements

The Intel AIM Suite is preconfigured with the Flypaper software as part of the 180-day trail of the software suite. The Intel AIM Suite is a technology for retail and digital signage applications that anonymously screens viewer metrics such as gender, age bracket and length of viewer attention. The technology allows retailers and advertisers to deliver more relevant content for individual viewers and track return on investment with greater accuracy. The Intel AIM Suite uses Intel® processor-based

computers and small optical devices connected to a digital sign. The software then anonymously aggregates the shopper data to deliver the metrics to retailers. Optical sensors mounted on digital signage displays use Intel AIM Suite software to detect an arrangement of pixels that resembles the general pattern of a human face. The pixels are analyzed using specific algorithms to determine a person's gender, age bracket and dwell time. No images are recorded and no individual data is collected so the Intel AIM Suite maintains consumer anonymity by using audience detection algorithms, which cannot collect any personally identifiable information, and cannot record any images or video footage.



Courtesy of Intel® Corporation

### Use Intel® vPro™ for Platform Management

The DSEK-12 also features the capabilities of the Intel vPro technology, which are enabled by the Kontron COMe-bIP6 module in the Kontron OPS-compliant media player KOPS800. These technologies can be used by the signage developer to help manage signage networks enabling solutions that cost less to service and are more secure.

Within the Intel vPro technology suite are three individual technologies: Intel® Active Management Technology (Intel® AMT), Intel® Virtualization Technology (Intel® VT), and Intel® Trusted Execution Technology (Intel® TXT). Intel AMT provides remote management and maintenance capabilities that enable IT professionals to query, fix and protect networked embedded devices, even when they're powered off, not responding or have software issues. Intel vPro technology helps perform remote asset tracking and checks the presence of management agents virtually anytime. It also provides the means to remotely turn devices on/off to reduce energy consumption during non-peak operating times. Enhancements enabled in the Intel AMT 8.0 available on the Kontron OPS-compliant media player KOPS800 include the following:

- » KVM 3 screen redirection supports up to three screen configurations for digital signage flexibility; the signage manager can see one at a time via the GUI. Screen Resolution up to 1920 x 1200 with 16-bit color is also supported. Switching between landscape and portrait modes and enhanced mouse navigation further enables remote diagnostic and repair capabilities.
- » Five new alarms are supported, with unique IDs. The alarm clock capabilities in Intel AMT 8.0 allow wake-up of the system without network connectivity.

Intel VT speeds up the transfer of platform control and the movement of data between different operating systems running on a virtualized platform. By lowering the workload on the virtualization software (i.e., VMM), Intel VT increases system performance and reliability. With virtualization, embedded signage developers can more easily migrate legacy software, consolidate functions and applications, and increase real-time performance.

Intel TXT protects embedded devices and virtual environments against rootkit and other system level attacks. Using industry-standard TPM 1.2 hardware, which is included on the Kontron COMe-BIP6 COM to store keys and other protected data, Intel vPro technology boots the BIOS in the Kontron OPS-compliant media player KOPS800, putting the operating system and software into a “trusted” execution state, verifying the integrity of the virtual machine and protecting the platform from unauthorized access. The digital signage platform is hardened, reducing risk from emerging threats of hypervisor attacks, BIOS or other firmware attacks, malicious root kit installation or other software-based attacks.

## Rapid Development and Deployment

The standards-based DSEK-12 streamlines the evaluation process thus reducing costs and enabling faster deployment for digital signage in a range of markets including retail, vending, education, healthcare, and transportation. Once the application development is complete, migration from the development platform to a deployment platform is streamlined because of the Kontron media player KOPS800 is industry-standard OPS compliant and ready for high-volume production.



Developers can use either the entire DSEK-12 in the field as a stand-alone external media player with any modern commercial screen, or un-mate the Kontron OPS-compliant media player KOPS800 and deploy just that portion directly into any OPS-compatible display as an integrated media player solution.

Since the Kontron media player KOPS800 has been designed for cost effective, high-volume manufacturing, this makes it easier for OEMs to transition from development to field trial and high volume deployment. OEMs will also be able to easily launch new platforms and refresh current networks using any of the new exciting screen technologies to capture greater audience attention. The pre-configured content management software in the DSEK-12 enables OEMs to make essential viewer-specific messaging changes per the information gathered by audience impression measurements analysis. Plus, the remote management and security technologies in the DSEK-12 keep the total cost of network ownership low. A truly valuable resource and design tool, the DSEK-12 is the solution to successfully de-fragment hardware and software that enables the rapid development and deployment of digital signage networks.



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## About Kontron

Kontron is a global leader in embedded computing technology. With more than 40% of its employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms. Kontron's product longevity, local engineering and support, and value-added services, helps create a sustainable and viable embedded solution for OEMs and system integrators.

Kontron works closely with its customers on their embedded application-ready platforms and custom solutions, enabling them to focus on their core competencies. The result is an accelerated time-to-market, reduced total-cost-of-ownership and an improved overall application with leading-edge, highly-reliable embedded technology.

Kontron is listed on the German TecDAX stock exchanges under the symbol "KBC". For more information, please visit: [www.kontron.com](http://www.kontron.com)

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