White Paper

An Introduction to AAEON's Solutions with the 6th Generation Intel Core Processors

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Overview

Over the course of 5 years since Intel first introduced to the world its 1st Generation Intel® Core™ processors, its size shrunk by more than 50%, (from 32 nm to 14 nm), with improved graphicscontrollers and capabilities, enhanced performance with less system resources, support for more advanced memory types and reduced power consumption.

Now, reaching its 6thiteration, the Intel chips continue to follow the trend of optimal performance while still drawing less energy. AAEON, always in tandem with the latest technological advances, is soon to launch solutions powered by these new, state-of-the-art Intel® processors.

This AAEON White Paper details 8 of its latest product offerings with Intel 6th Generation Intel® Core™ processors, including their key features and most viable applications. From embedded SBCs to network appliances, these products will harness the strength of these processors to bring you the most powerful and well-rounded solutions available.

COM-SKHB6/ COM-SKUC6 COM Express Modules

Designed to the COM Express Specification 2.1, AAEON's COM-SKHB6 and its mobile counterpart, the COM-SKUC6 are created for two distinct markets.

The COM-SKHB6 offers 30% greater processing power and graphics rendering capabilities than previous generations. With an Intel® Core™ i7-682x CPU powering the module, memory support is enhanced to include the latest DDR4, ECC-enabled memory, with the maximum capacity if 32 GB for faster transfer speeds and stronger signal integrity.

COM-SKUC6

COM-SKHB6

The processing power brought on by the new CPU makes demanding applications such as robots or media-intensive digital signage a breeze through upgraded cores augmented with improved graphics cores, satisfying the demands for the burgeoning 4k-resolution content in more than one monitor. In addition, an exhaustive array of I/O and expansion ports, which include up to eight USB 2.0 or four USB 3.0 ports, PCI (x16) and PCI (x8) slots, makes it one of the most feature-rich COM modules on the market

Users in mobile-oriented applications may opt for the more lightweight COM-SKHB6. Using the U-variant of the new processors, it consumes 15 W of power while still delivering nearly the same performance of its higher-end counterpart (albeit only DDR3L memory with the maximum capacity of 8 GB supported). The module's reduced energy requirement makes it ideal for adoption in the government sectors or medical equipment such as ECG machines.

GENE-SKU6 Subcompact Board

The GENE-SKU6 is born out of the need for an energy efficient solution to the industrial automation sector. Powered by the U-variant processors, the board draws around 15 W of power while offering substantial performance improvements over pervious iterations in the form of DDR4 memory support and triple simultaneous displays from the board's VGA/DP, LVDS/eDP, and DVI option.

Besides the raw power offered by the new chips, the board itself is designed with specific features to make it more conducive for applications in the automation field. For example, the CPU is placed on the solder side of the board for cooling (the enclosure of the system can be designed as a heat sink). The board can run on wide voltage range of 9 - 36 V to match power sources commonly found in factories. Lastly, the onboard COM ports and DI/O are powered to facilitate the use of industrial automation or machine vision equipment

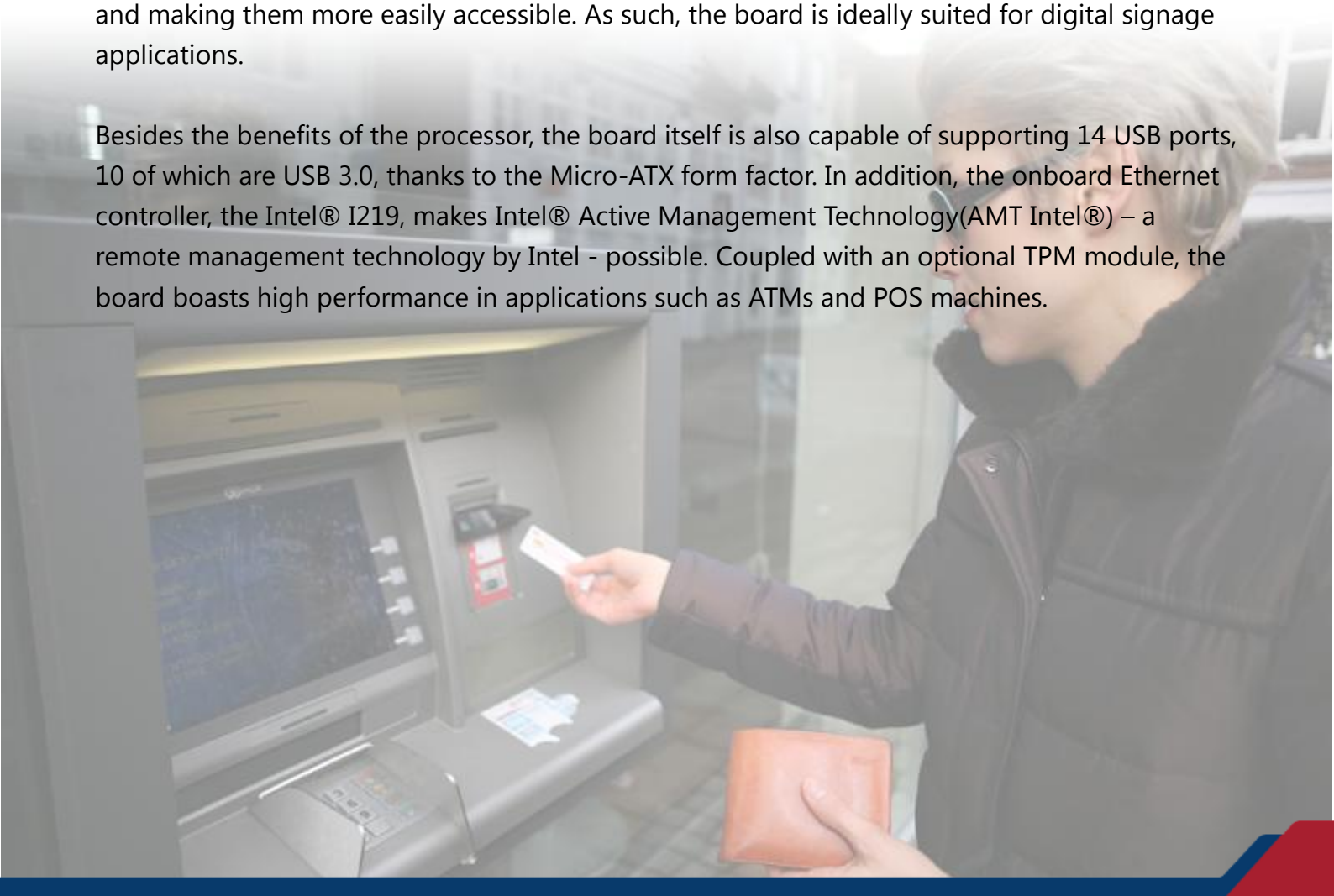
The board also carries AAEON's Board-to-Board, or BIO, interface for quicker and easier customization. The interface is meant to be used with BIO daughterboards that are lightweight, simple in designed, and made-to-order. Thus any expansion requirements, be it more I/O slots or PoEs for automation applications, can be easily fulfilled, greatly expediting the customization process by bypassing traditional processes of re-specifying, building, and testing the base product.

IMBM-Q170A Industrial Motherboard

Powered by the S-variant of the processors, the new chips enable the IMBM-Q170A support for more voluminous and advanced memory, namely DDR4 memory, with maximum capacity of 64 GB (divided among 4 RAM slots). The memory itself features faster transfer speeds while using less energy, thus reducing the overall power consumption of the system.

Likewise, the new processors bring more to the graphics department with native support for 4K media content and improved graphic controller, easing their rendering and processing efforts and making them more easily accessible. As such, the board is ideally suited for digital signage applications.

Besides the benefits of the processor, the board itself is also capable of supporting 14 USB ports, 10 of which are USB 3.0, thanks to the Micro-ATX form factor. In addition, the onboard Ethernet controller, the Intel® I219, makes Intel® Active Management Technology(AMT Intel®) – a remote management technology by Intel - possible. Coupled with an optional TPM module, the board boasts high performance in applications such as ATMs and POS machines.



EMB-Q170A/ EMB-Q170B/ EMB-H110B Industrial Motherboards

Just like its Micro-ATX cousin, the Mini-ITX-based EMB-Q170A, EMB-Q170B, and EMB-H110B benefit from the S-variant processors with more advanced memory, namely DDR4 memory, and 4k media content support, bringing the boards' graphical as well as general performance up a notch.

The EMB-Q170A/B boards carry the latest M.2 connectors for eliminating bottlenecks with accelerated read and write speeds. Graphically, in addition to a diverse array of display options, which include VGA and DisplayPort (DP) for Q170A, and LVDS, eDP, and DP for Q170B, both boards are capable of triple simultaneous displays, with 4k resolution enabled for each display. The EMB-Q170B additionally sports a low profile design measuring 1U in height.

Users with lower graphical requirements may find the EMB-H110B more to their taste, a more economical model to the abovementioned models. Rather than 4K resolutions, the board supports the more common 2K resolution while still capable of dual-display from DP (shared with HDMI), eDP, and LVDS outputs. Similar to its higher tier counterpart, it also sports the low profile 1U design and M.2 connectors.

EMB-Q170A

EMB-Q170B

EMB-H110B

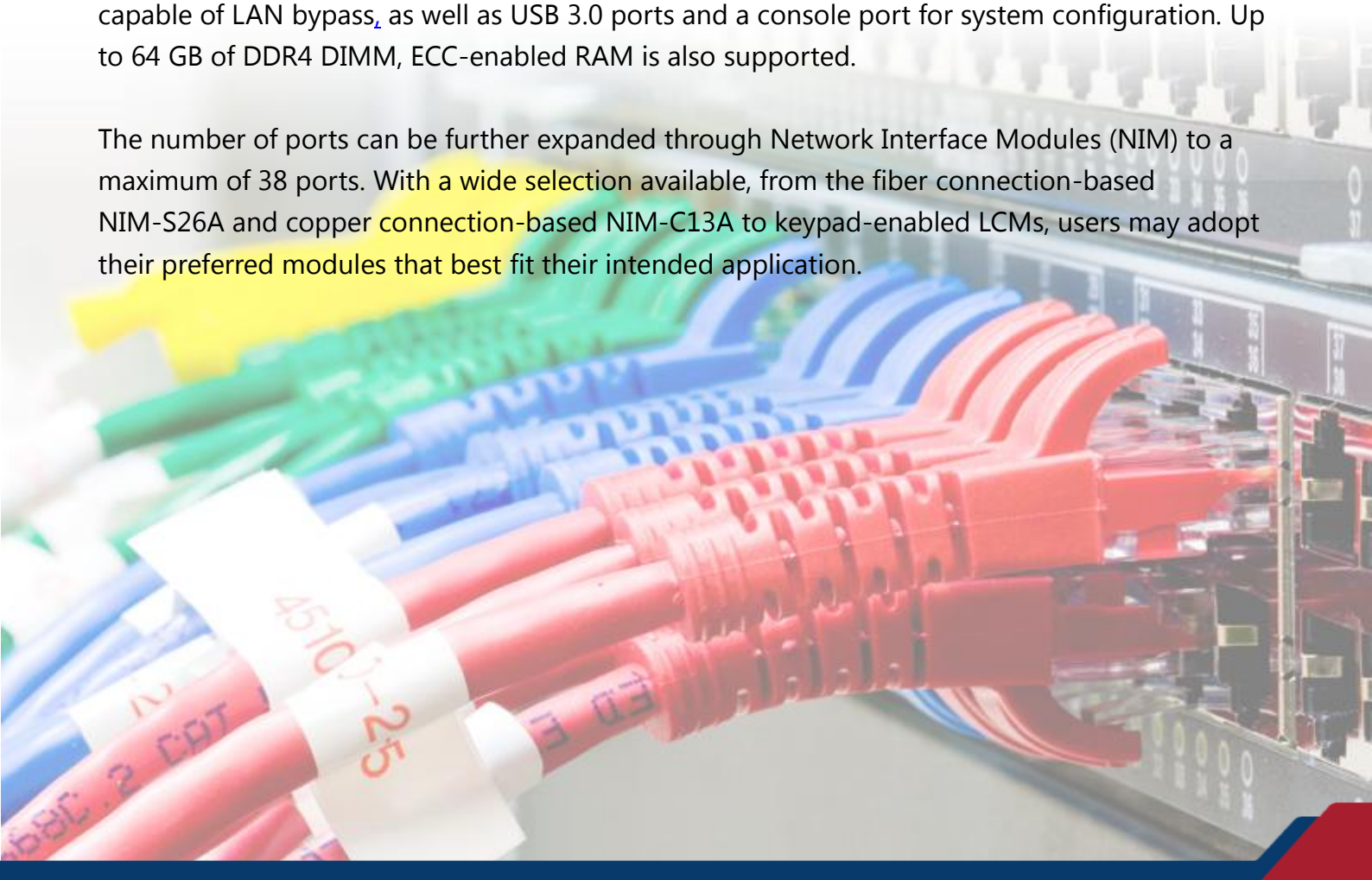
FWS-7820 Network Appliance

Besides embedded solutions, AAEON brings the merit of these new processors to network appliances as well.

AAEON's FWS-7820 network appliance is made to be compatible with the line of 6th generation Intel® Core™ processors. Regardless of the consumer-based Intel® Celeron®processor (G3900TE) and Intel® Core™ (i7- 6700TE) processor product line or the server-class Intel® Xeon® processors (E3-1275 v5), the device can harness the power of the selected CPU to offer the best network security for any networks.

Measuring 1U in dimension, the FWS-7820 carries six onboard 1 GbE Ethernet ports with one pair capable of LAN bypass, as well as USB 3.0 ports and a console port for system configuration. Up to 64 GB of DDR4 DIMM, ECC-enabled RAM is also supported.

The number of ports can be further expanded through Network Interface Modules (NIM) to a maximum of 38 ports. With a wide selection available, from the fiber connection-based NIM-S26A and copper connection-based NIM-C13A to keypad-enabled LCMs, users may adopt their preferred modules that best fit their intended application.



Conclusion

Incorporating all of the newest features available in the latest hardware is a critical requirement to remain competitive in today's demanding markets. Leveraging the cutting-edge processors to their fullest potential, AAEON will continue to bring the highest quality and technologically advanced products to market.

About AAEON

AAEON is a leading manufacturer of advanced industrial and embedded computing platforms. Committed to innovative engineering, AAEON provides integrated solutions, hardware and services for premier OEM/ODMs and system integrators worldwide. Reliable and high quality computing platforms include industrial motherboards and systems, industrial displays, rugged tablets, PC/104 modules, PICMG half-size and full-size boards and COM modules, embedded SBCs, embedded controllers and related accessories. AAEON also offers customized end-to-end services from initial product conceptualization and product development on through to volume manufacturing and after-sales service programs. AAEON is a GSA contract holder (#GS-35F-0470Y) serving the Federal, State & Local government sectors. AAEON is also an Associate member of the Intel® Internet of Things Solutions Alliance. From modular components to market-ready systems, Intel and the 400+ global member companies of the Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. 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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