Application Note

Digital Security Surveillance

Intel® Atom™ Processor N270 Delivers Affordable, Low-power, Flexible Performance for Mid-range Surveillance Digital Video Recorders

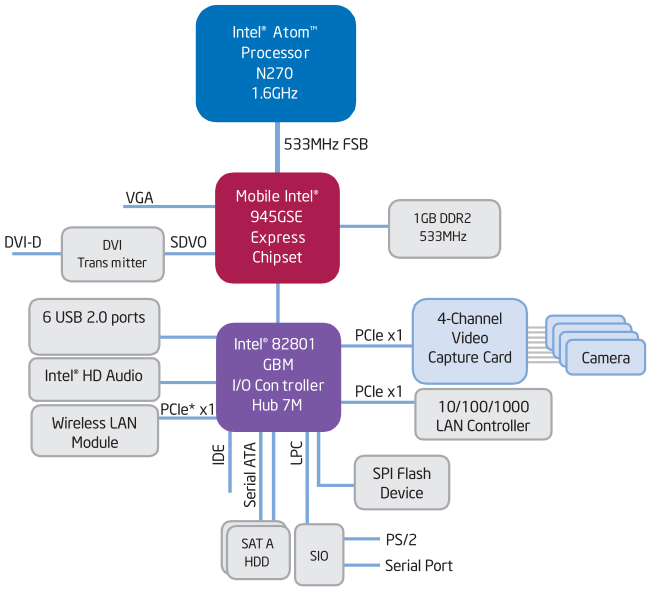
The Intel® Atom™ processor N270, based on Intel's revolutionary Intel® Atom™ microarchitecture, offers a low-power and affordable solution for mid-range Digital Video Recorders (DVRs) without compromising performance. At a low Thermal Design Power (TDP) of 2.5W, the Intel Atom processor N270 contains the processing power to efficiently support software-based encoders, providing customers the flexibility to add features and upgrade their solutions easily.

Building Blocks

A DVR designed with the Intel Atom processor N270 can connect up to four channels of full D1 resolution analog cameras, through a PCI Express*- or PCI-based video capture card. The graphics, memory and I/O interfaces are provided through the Mobile Intel® 945GSE Express chipset and the Intel® 82801GBM I/O Controller Hub (ICH7M).

With a TDP of 6W, the Mobile Intel 945GSE Express chipset is ideal for the surveillance DVR application, which is required to operate 24 hours a day. Furthermore, the processor is able to offload graphics processing to the integrated graphics core in the chipset.

This DVR is designed to be fully connected either through the 10/100/1000 LAN controller or a separate PCI Express minicard WLAN module. This provides connectivity to the central monitoring system, server, or backend storage. For a standalone device connectivity remains an important feature, to trigger notifications and alarms.



Block diagram for an Intel® Atom™ processor N270-based DVR

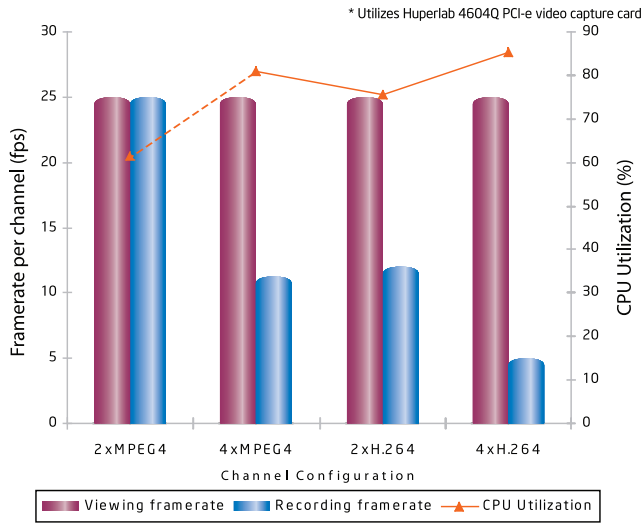
Software Advantage

When implementing software-based encoders and DVR applications on the Intel Atom processor N270, the developer can maintain a common software code base across all Intel® processor-based solutions, thus shortening software development cycles as the product evolves from one generation of processor to the next. To optimize software performance, developers can take advantage of the Intel® SSE2, Intel® SSE3 and SSSE3 support provided by the Intel Atom processor N270.

With an optimized solution, an Intel Atom processor N270-based DVR can achieve up to four channels of full D1 resolution (720 x 576) real-time (100fps) viewing, while recording at 48fps with MPEG4 compression. Using H.264 compression, the system can support four channels of full D1 resolution real-time viewing and recording at 20fps.

To enable video analytics, the video resolution may easily be scaled down to 320x240, or the viewing frame rate reduced. With the appropriate video capture card, this system is also capable of supporting 16 channels at 320x240 resolution.

Full D1 (720x576) performance achieved with Intel® Atom™ processor N270-based DVR



Conclusion

A surveillance DVR based on the Intel Atom processor N270 is a compelling solution, delivering performance, scalability and flexibility in a low-power and affordable package. It not only allows high-resolution video imaging and advanced compression to reduce storage, but also supports video analytics features, making it ideal for more sophisticated mid-range installations, such as residential, small retail store, and small office/home office environments.

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