Intel Sees More Natural, Humanized Computing In The Coming Decade

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Intel Corporation today outlined its vision to develop technologies over the next few years that will bring "digital intelligence" to future electronics products. The plan is to deliver technologies that will be more intuitive, intelligent and "humanized," so the industry can deliver products that will be easier to use and more helpful and useful for people.

Justin Rattner, Intel senior fellow and director of Intel's Corporate Technology Group, explained in a keynote here today that people want to interact with technology much in the way they do with people. This will create tremendous demands on the performance and functionality of electronic products, requiring new ways to develop both hardware and software.

Rattner outlined how researchers at Intel are studying the types of tasks people will want their electronics products to do, then using that knowledge to drive hardware and software technology development that will serve as the foundation for more intelligent future platforms.

"Imagine a phone that can translate languages in real time so you can talk to people in other countries more easily, or finding a photo of your children playing with a pet from among the thousands of photos you have stored in multiple computers in your house," said Rattner. "These tasks might seem simple, but they require levels of performance, sophistication and intelligence in both hardware and software that don't exist today. To deliver these capabilities in products that are easy to use

and attractive to many people requires that we, as an industry, rethink our approach to platform development."

As the world moves toward digital technology becoming more pervasive and enormous amounts of digital content (text, still images, audio and video) proliferate, more natural and people-friendly interfaces such as speech, handwriting and image recognition for electronics products will be needed.

Continuing Innovation through Platform Evolution

Intel is already evolving its processor architectures to move toward supercomputer-like performance by employing multiple processing cores in each processor (which is like adding multiple "brains" to a computer) instead of a single processing core, as is the case with today's processors.

As processors and other components inside computers increase in performance, improving the data paths (called buses) between these components will also be necessary, as more data needs to be moved around inside the computer at much higher speeds. Today's data paths are made of copper wires, which have inherent limitations on the amount and speed of data transfers. For this reason, Intel is researching the use of silicon photonics technology, which could ultimately enable extremely high-speed data transfers.

Similarly, Intel is evolving its software tools to make software applications more sophisticated in order to take advantage of these more advanced processors to perform a larger number of simultaneous tasks.

Another example Rattner cited is a way to split and isolate device resources into multiple chunks to do various jobs (commonly called virtualization). For example, if a computer malfunctions due to hardware

or software issues, virtualization would allow recovery of information using another computer on the network.

"At Intel our research focus is all about making technology more valuable and useful for people," said Rattner. "With the increased capabilities and opportunities we're developing in our labs combined with the company's platform focus, this is an extremely exciting time to be an Intel researcher working with the industry to create the future."

Intel will work closely with the industry - original equipment manufacturer (OEMs), independent software vendors (ISVs) and developers - on a number of fronts to make this computing vision a reality and to bring better, more useful products to people.