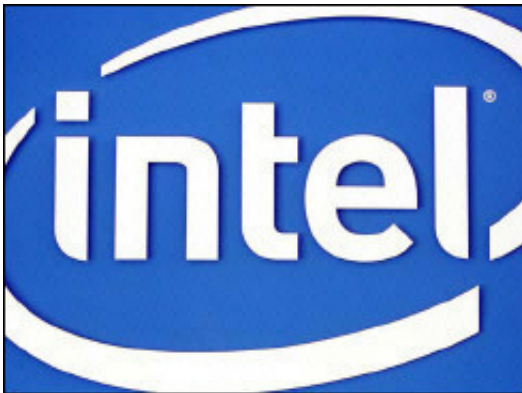# Intel Provides Further 45nm, Penryn Details at Beijing Developer Forum

April 17 2007

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Using what he characterized as the "magic of 45-nm" as a backdrop, Sean Maloney, Executive Vice President and General Manager of Intel's Sales and Marketing Group, said that the company was in a particularly good position going forward, and that its leadership in Hi-k metal gate silicon technology will spur on even more innovation and growth opportunities for the company.

"It's unusual to make a fundamental change to a transistor and at the same time be at a very, very healthy position with a broad range of products built on what Gordon himself described as the biggest breakthrough in transistor technology in 40 years," Maloney said. "So, yeah, this is a big show for us."

Intel said that early Penryn performance tests show a 15 percent increase in imaging related applications, a 25 percent performance increase for 3D rendering, and more than 40 percent performance increase for gaming.

The tests, according to Maloney, were based on pre-production 45nm Intel quad core processors running at 3.33 GHz with a 1333 front side bus and 12 MB cache versus a 2.93 GHz Intel Core 2 Extreme (QX6800) processor, just announced last week .

Intel said that for high-performance computing, users can expect gains of up to 45 percent for bandwidth intensive applications, and a 25 percent increase for servers using Java. Those tests were based on 45nm Xeon processors with 1,600-MHz front side buses for workstations and HPCs, and a 1,333 MHz front side bus for servers -- versus current quad-core X5355 processors, the company said.

During the call, Intel execs also took the opportunity to reveal a few more details on Project Larrabee, a new "highly parallel, IA-based programmable" architecture that the company says it is now designing

products around.

While details were scant, Maloney did say that the architecture is designed to scale to trillions of floating point operations per second (teraflops) of performance and will include enhancements to accelerate applications such as scientific computing, recognition mining, synthesis, visualization, financial analytics, and health applications.

"We're not talking about where it is on the roadmap, other than to say that we're now planning products," Maloney said. "Previously, it had been in the research space. Now we're saying we're into the product-planning phase," he continued.

While he also wouldn't talk about specific products, Maloney did say, rather cryptically, that Intel will use the technology to address a whole set of applications, new and old, but address them in new ways.

This week at the Developer Forum, the chipmaker is also expected to demonstrate the 80-core R&D chip that it showed in late March. Maloney stressed that it is not related to Project Larrabee.

Also briefly touched upon during the call was Intel's new vPro technology, which the company says is coming in the second half of the year. Codenamed "Weybridge," the next generation processor technology is being aimed again at business PCs using Intel 3-Series chipsets (codenamed "Bear Lake"). Intel's forthcoming Centrino platform, announced two weeks ago, will also make use of the vPro technology in laptops for the first time.

When asked about the scope of this year's Developer Forum, Maloney said that it was as big as any he could remember.

"I think it reflects a very focused and confident effort from the

company," he said.

"We were very happy to have made that 45-nm announcement, but equally happy that the development efforts on top of it are also very mature for this stage," Maloney said. "So both of them are good news from our point of view and that is why we are able to announce so many products at once."

Intel also talked more about its plans to invest $2.5 billion to build a 300-mm wafer fabrication facility in Northern China as well as its relationship with the Chinese government.

Maloney said that it's been more than 20 years since Intel first opened up shop in Beijing and that the company has been an active partner with Chinese government ever since.

"Since we went to China in the 1980s, we've worked with multiple industries - the Ministry of Information industry, the Ministry of Science and Technology, the State Planning Counsel, and so on. And that covers a whole series of things to do with what you do when you're doing major investments in countries," Maloney said. "We get both formal and informal advice from those agencies and have multi-year relationships with them."

Intel says it is planning on hiring over 6,000 employees to work at the new factory and that, when completed, it will be the most advanced semiconductor fab in China. "This is significant to us," said Maloney.

Part of that significance is likely tied to the fact that semiconductor growth in the Asian market is moving along at a rapid pace, according to the Semiconductor Industry Association (SIA). Because Asia continues to consume a larger and larger relative portion of the global supply of semiconductors, Intel's move to build a new fab there may indeed be

seen as an effort to take advantage of that demand.

Regarding the recent New York Times story that claims Intel is planning on announcing a new initiative related to a new class of wireless hand-held computers, Maloney said he could not comment at the moment.

He did say, however, that the company was "very keen" on pushing the frontiers of high integration.

"It's always been one of the benefits of Moore's Law that you can choose to take your benefits in the space of smaller, rather than just faster," Maloney said. "And we are very attracted by what we can do in the marketplace with that - whether it's new kinds of devices or smaller devices - and basically 45-nm allows this to happen. We can use this power and thermals and transistor budget and put a whole bunch of extra things in there. You'll hear more about this on day two."

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