

# AMD's Next-Gen Mobile Chip, Platform to Conserve Power

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Advanced Micro Devices hopes to have its next-generation mobile microprocessor and platform in the hands of OEMs by the middle of 2008.

Advanced Micro Devices is poised to unveil its next-generation microprocessor for notebooks along with a new laptop platform that looks to compete with Intel's recently released Centrino offering.

On May 18, AMD executives will detail its new mobile microprocessor, code-named Griffin, along with its "Puma" platform for laptops. Both the chip and the platform are expected to debut in the second half of 2008, company executives said.

For AMD, the importance of the announcement is that it marks a major update to its notebook platform, including an expanded set of power management features within its line of mobile processors.

"With our current offerings, we used the same microarchitecture for mobile, desktops and servers," said Maurice Steinman, a fellow with the Sunnyvale, Calif., chip maker. "That had served us well in the past, but now we want to ... build on a different level and focus in on the needs of the mobile market."

The details of Griffin and Puma come a little more than a week after Intel officially released its own next-generation mobile platforms called Centrino Pro, which is geared toward enterprise and business users, and

Centrino Duo for consumers.

After AMD releases its quad-core Opteron processor—"Barcelona"—later this year to compete against Intel's quad-core Xeon chips, the next big market where the two companies plan to clash is the mobile space. At their meeting with financial analysts May 3, Intel executives detailed plans that included an aggressive push into mobile devices.

AMD's Griffin processor is a dual-core chip, with each core having 1MB of dedicated L2 cache, compared with the chip maker's current offerings of 512KB for each core.

The processors will also be manufactured with the company's 65-nanometer manufacturing process.

The cores, Steinman said, will be built on separate power planes, which will help conserve power and increase notebook battery life by allowing each core to scale clock speed independently, reducing power consumption when not under heavy loads. Griffin chips will also feature a revised integrated memory controller, which will improve DRAM (dynamic RAM) efficiency, and will also operate on its own power plane for additional reductions in power.

By allowing the cores to function independently, AMD is allowing each core to switch into a "deep sleep" mode if the whole chip is not being fully utilized. This enables one core to power down if it is not needed, while the other performs at a level required to complete the functions the notebook user needs.

Other features include improved HyperTransport 3 technology, a high-speed, chip-to-chip interconnect that looks to offer three times the I/O bandwidth currently offered with AMD's mobile processors. This will

help support Microsoft's DX10 graphics application programming interface, which helps deliver a better experience with the Windows Vista operating system.

The processor's architecture also allows this next-generation HyperTransport to disconnect when it is not needed, even if the two cores are executing various tasks. This, according to AMD, will also allow for better battery life.

On the platform side, Puma—which includes Griffin and AMD's next-generation RS780 chip set—will also be capable of incorporating both discrete and integrated graphics, along with additional display capabilities, including support for DVI (Digital Visual Interface), DHMI (High-Definition Multimedia Interface) and DP (DisplayPort).

The platform will also utilize second-generation PCI-Express technology.

New technologies in Puma include HyperFlash, which adds flash memory to a system to boost performance and battery life. HyperFlash is similar to Intel's TurboMemory feature, introduced with its latest Centrino platforms.

Finally, the Puma platform will include a feature AMD is calling PowerXpress.

PowerXpress will allow a notebook to use a discrete graphics card and integrated graphics. When the notebook is plugged into an AC adapter, the platform switches to the discrete graphics card. However, when running on battery power, it switches to integrated graphics to reduce power and extend battery life. The feature allows the notebook to make the switch between graphics processors without rebooting.

All of these developments within the new mobile platform, especially the tighter integration of the CPU and the chip set in the platform design, will eventually lead to the development of AMD's Fusion technology, which looks to incorporate the CPU and the GPU on the same piece of silicon, Steinman said.

Fusion is scheduled to be delivered sometime in 2009.

For enterprise users, Steinman said the new mobile platform will offer laptops with better graphics capability for Vista and other applications, improved battery life for workers on the road, and the ability to support multiple displays.

"I really do think that we have a number of unique features, and this really shows how we are committed to delivering a unique mobile design," Steinman said. "I think features like the power management and some of the fine granularity you get with the platform will not only be good for scores and benchmarks, but they also respond to what real users are looking for."

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