

## AMD launches world's first 40nm GPUs

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A lower transistor count and smaller process technology enables the Mobility Radeon HD 4860 (right) to be much smaller than the Mobility Radeon HD 4850 (left).

Desktop GPUs usually get the first crack at a new process technology, but AMD has bucked the trend today by announcing that the world's first 40nm GPUs will in fact be mobile parts. The Mobility Radeon HD 4860 and 4830 will both take advantage of TSMC's 40nm production facilities and will sit on either side of the Mobility Radeon HD 4850.

Interestingly, however, the 4860 has fewer stream processors than the 4850, with a total of 640 units compared with 800 on the 4850. AMD's hope is that the GPU's GDDR5 memory and higher clock speeds will make up for this and boost the performance. The Mobility Radeon HD 4860 will feature up to 4GHz GDDR5 memory, and the core will be clocked at 650MHz. Comparatively, the [Mobility Radeon HD 4850](#) has a GDDR3 memory clock of up to 850MHz and a 500MHz core clock.

Similarly to the 4860, the Mobility Radeon HD 4830 also has 640 stream processors, but has a core clock of either 450MHz or 600MHz, depending on the circumstances. Meanwhile, the 4830 will come equipped with either DDR3 or GDDR3 memory, which will be clocked between 800MHz and 900MHz.

Both the new 40nm GPUs feature a 128-bit memory bus, and contain 826 million transistors. As a point of comparison, the 55nm Mobility Radeon HD 4850 and 4850 feature 956 million transistors, so the smaller transistor count and process technology have enabled AMD to shrink the die size of the GPUs significantly. You can see in the photo above that the central die of the Mobility Radeon HD 4860 is much smaller than the die of the Radeon HD 4850.

Explaining the decision to introduce the 40nm technology with mobile GPUs, AMD's senior vice president and general manager of graphics products, Rick Bergman, said on his [blog](#) that *"it's well documented that notebooks have surpassed desktops in worldwide sales."*

Bergman also added that *"this is the fifth consecutive time that AMD is first to launch graphics processors based on a new process node, but the first time we've chosen to make such a debut in the mobile market. Shrinking these chips smaller and smaller means that OEM partners are able to pack more graphics horsepower into smaller notebooks, so that consumers can enjoy all the goodness of DirectX 10.1 games, home theater-quality HD multimedia on HD displays and energy-efficient features for long battery life on a wide range of notebook form factors."* For those of you who are eager to see what AMD will do with 40nm desktop GPUs, Bergman tells you *"not to worry"*; as ***"40nm desktop parts are coming soon."***