

## AMD rolls out major upgrade to microprocessors

### Barcelona first step to improve chip roadmap; Intel rival aims to silence critics

By [Matt Andrejczak](#), MarketWatch  
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**SAN FRANCISCO (MarketWatch) -- Battle-weary Advanced Micro Devices Inc. is ready to throw the latest -- and arguably most important -- salvo in its long-running battle with rival Intel Corp.**

This week, AMD is orchestrating a global party to celebrate the launch of the company's first major upgrade to its microprocessor technology in more than four years.

Code-named Barcelona, the much-awaited and delayed quad-core computer processor is designed to be the calculating engine of corporate server networks -- a high-profitable area in the microprocessor segment where AMD's much-bigger rival Intel Corp. has stepped up its game the past year.

Barcelona, which began shipping recently, is named after a stop on the Formula One race circuit. Like a race car, AMD, a Ferrari sponsor, needs Barcelona to hit on all cylinders. There's a lot riding on it.

"It's a very important product launch," said Dean McCarron, who runs Mercury Research, a Cave Creek, Ariz.-based tracker of microprocessor share data. "AMD needs to recover lost market share. It's the first part of their new architecture."

Computer vendors and investors have been waiting.



Randy Allen is General Manager of AMD's Server Group.

Sunnyvale, Calif.-based AMD ([AMD](#)) is reeling in losses, with its stock far from its 52-week highs. The company has lost important share in the server-chip market, where it had once stunned Intel with better technology that remade AMD's image on Wall Street.

Barcelona is a significant step in AMD's bid to improve its microprocessor roadmap, which analysts earlier this year chided for lacking direction. Beyond Barcelona, AMD plans to roll out new quad-core technology for desktops and laptops as well as other chips for portable electronics.

"It's an industry changing product," said Pat Patla, director of server workstations at AMD. "Barcelona is a ground-up 100% new design. It's the most impactful processor we've ever made."

AMD is playing catch up with Intel, which released its quad-core server processor in November 2006 and has sold nearly 2 million such chips to date. Demand is growing, with 1 million of those quad-core server chips sold since the end of June, according to a person close to Intel.

#### Under the spotlight

AMD is casting Barcelona in a Hollywood-like setting. On Monday night, it's pulling the curtains back on the server processor at San Francisco's Letterman Digital Arts Center, home to Star Wars creator George Lucas, a user of AMD technology.

Other parties will be held in places such as Beijing, Bangalore, Seoul and Tokyo, marking the culmination of almost three years of design work, led by a team of 400 engineers at AMD's offices in Texas, California and India.

Targeted at the high-end of the server food chain, Barcelona is designed to handle heavy workloads in corporate datacenters, with four calculating engines on a single piece of silicon. That's the equivalent of running a car with four engines under the hood.

Heavyweight server vendors, IBM Corp., Hewlett-Packard Co., Sun Microsystems Inc. and Dell Inc., are developing systems for the product.

While AMD is proud of its new chip, the company will have to trump its doubters.

There are many questions about how competitive Barcelona will ultimately prove to be, how much market share it may take, and how much it will improve AMD's shaky balance sheet. The chip ran into unexpected delays, hurting AMD's chances to leapfrog Intel with new technology, like AMD did with Opteron, the forerunner to Barcelona.

"Currently, Intel does have a leg up performance-wise on AMD," said Tony Massimini, chief of technology at Phoenix-based Semico Research. If Barcelona is not competitive, "AMD will lose ground."

AMD cannot afford further setbacks. For the six months ended June 30, AMD had racked up a \$1.2 billion net loss and its stock has been rocked by liquidity concerns.

Investors have been giving Intel ([INTC](#)) the benefit of the doubt, showing more confidence that Intel will hit its planned chip-delivery schedules. Intel shares have surged 25% this year, while AMD has dropped 37%.

Stifel Nicolaus analyst Cody Acree said that while Barcelona won't have to stomp Intel's current server chips to be considered a success, he said investors "are taking much more of a prove-it to me attitude with AMD."

"Investors haven't entirely counted AMD out or written off Barcelona," said Acree, who rates AMD shares a buy with a long-term price target of \$20 a share. "It sounds like Barcelona will be competitive, but it will be hard to argue for a premium."

One drawback is the clock speed of Barcelona, which is slower than AMD had hoped.

Clock speed is the rate at which a processor can complete processing cycles. The processor will initially run at a clock speed of 2-gigahertz, which may limit AMD's ability to charge a premium rate compared to what Intel is currently selling, industry sources said. AMD has promised to lift the clock speed to 3-gigahertz by year-end.

"The good news is that Barcelona will be very power efficient," said Martin Reynolds, vice president at technology researcher Gartner Inc. "It will be good in low power environments."

Making chips that consume less energy has become a major initiative in the semiconductor world, particular for server processors. It's a key selling point to corporations seeking to cut energy bills at huge data centers.

Barcelona, according to some researchers, should help improve AMD's slipping microprocessor prices. To what degree will depend on the chip's technical merits and demand, said researchers, who are waiting on industry benchmarking tests.

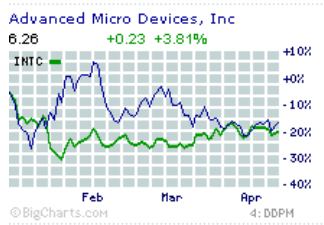
From 2003 through much of 2006, AMD was able to charge a premium price for its Opteron server-chip, Barcelona's predecessor technology, because Intel didn't have a very competitive server-chip technology.

That changed with Intel's Core chip architecture, released in mid-2006. Intel has pledged to further raise the bar with its Penryn processor, the latest update to its quad-core server line due out before year-end.

Gartner's Reynolds predicts this will make it tough on AMD.

"AMD is essentially boxed by Intel's roadmap for the foreseeable future," he said. "It limits their ability to charge premium prices." ■

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