



Opinion

Microsoft Pulls the Plug on Itanium (and What This Could Mean to HP)

Introduction

Clabby Analytics went out on a limb last November and published a report that stated that why we believe that the server market is consolidating around three architectures: x86 multi-cores; POWER, and z. (This report was recently updated and can be found at: <http://www.clabbyanalytics.com/uploads/ServerMarketViewMarch2010UPDATE.pdf>). In that report, we stated why we believe that Intel's Itanium microprocessor architecture is destined to fail; and we expressed doubt that Sun's new owner, Oracle, will make the heavy investments necessary to enable Sun's SPARC to keep pace with IBM's POWER architecture in the RISC (reduced instruction set computing) market. With Itanium out — and with SPARC becoming a specialty server/appliance for Oracle database and application environments — that leaves x86 multi-cores, POWER, and z in the mainstream.

Earlier this week Intel formally launched the multi-core server architecture that we claim is going to take the market by storm — Intel's new Xeon 7500 processor series (code named Nehalem EX). And by the end of this week, Microsoft announced that it would no longer focus on Intel's Itanium platform, instead choosing to put all of its eggs in one basket — x86 multi-cores.

Microsoft's move comes as no surprise to us. A few years ago Microsoft chose not to build its compute cluster stack on Itanium (which seemed curious given that compute clusters usually sell to high-end customers — and Itanium was the chip being positioned for sale into the high-end of the market). And, from what we can tell, customers have not been flocking to Windows on Itanium (making Microsoft's continued investment in Itanium hard to justify). Microsoft customers, in fact, have been very clear about what they want — Windows on x86 architecture — and their buying patterns overwhelming prove this.

What Microsoft is doing is listening to its customers and building Windows for Xeon — which is exactly what the information technology (IT) buying marketplace is saying that it wants. Pulling the plug on Itanium should have little revenue impact on Microsoft or its resellers — and it frees-up Windows ecosystem vendors to focus on building products for the x86 marketplace rather than having to build and test products for a comparatively few Windows/Itanium users.

Now, let's go out on another limb. Clabby Analytics believes that the withdrawal of Windows from the Itanium platform will have a profound effect on Hewlett-Packard (because Hewlett-Packard owns approximately 85% of the Itanium market). It will cause HP to refocus its strategy and reposition itself as a homogeneous supplier of x86 multi-cores. And, by minimizing its Itanium efforts, HP may actually be able to increase sales.

Itanium: A Spotty History

Before reading much more of this report, you (the reader) need to understand that Clabby Analytics has, for years, taken a rather jaundiced view of Itanium. Here's why:

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- The Itanium processor (conceived in 1989) was originally due to be released in 1998 (the first version was codenamed “Merced”). It finally made it out the door in 2001. This was the first in a long and consistent series of release date slips and features-dropping during Itanium development;
- Itanium originally ran x86 applications (making it a hybrid) — but the performance was so bad that the x86 logic was removed from the chip. After Itanium dropped its 32-bit logic, IT buyers made it clear that they wanted a product that could bridge between 32-bit and 64-bit computing — yet Intel persisted in giving its customers and “either/or” choice (buy Xeon for 32-bit computing, buy Itanium for 64-bit computing). AMD recognized the market need for x86 hybrids — built one called Opteron — and experienced a huge spike in demand for its products according. About a year after AMD’s Opteron hybrids were announced, Intel finally responded with an x86 Xeon hybrid of its own;
- After Itanium was finally released, important vendors who might have helped fill in the Itanium ecosystem bailed-off the Itanium bandwagon. First, hardware vendors such as Dell and IBM dumped it, then key software vendors dumped it (VMware decided not to build its virtualization stack on Itanium; Microsoft chose not to build its compute cluster stack on Itanium — and so on...);
- After major vendors abandoned or withdrew support for Itanium, more slippage and feature dropping followed; and ultimately
- HP customers were given little choice but to move to a new architecture (incurring substantial migration costs in some cases) because HP decided to discontinue its PA-RISC architecture in favor of Itanium (we called this “forced migration).

Itanium’s consistent missing of projected release dates while dropping features along the way has contributed greatly to our less-than-enthusiastic view of Itanium. Intel’s refusal to grow its Xeon (x86) line in directions that conflicted with Itanium has also contributed to our dim view of Itanium. Further, HP’s “forced migration” to Itanium practice (where HP customers were essentially driven to adopt Itanium if they wanted to stay on HP/UX did not sit well with us). For these reasons, we readily admit that we have a distinct dislike of this chip and the way it has been marketed.

For perhaps a more balanced opinion of Itanium, *Clabby Analytics* suggests that you read Gordon Haff’s opinion entitled “Why Itanium Still Matters” at:

http://news.cnet.com/8301-13556_3-10452793-61.html?part=rss&subj=news&tag=2547-1_3-0-20

Signs of Big Trouble: Encroachment; and Dissolving OS Support

Clabby Analytics has compared the architectural roadmaps for Intel’s Xeon and Itanium architectures — and believes that Xeon considerably overlaps Itanium from a features/function perspective. Further, we also observe that Itanium operating systems support appears to be dissolving (as evidenced by Microsoft’s withdrawal of Itanium development; and by Red Hat dropping Itanium support in subsequent revisions of its Linux distribution). And some OSs are in a state of decline, as evidenced by the stasis in the Unix market, and by our perceived lack of growth in NonStop and OpenVMS markets). Xeon encroachment and operating system withdrawal/decline are both worth a closer look.

Encroachment

First, it should be clear, even to the most casual observer, that Intel’s Xeon group has taken off its boxing gloves and is ready to do serious damage to all challengers — including

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Itanium. Intel's new Xeon 7500 processors (codenamed Nehalem EX) boast impressive scalability (from 2 to 256 chips per server), new power management features, new memory management features (extremely important in the 64-bit marketplace where large amounts of memory can be addressed), and a 3X performance improvement over previous generation Xeon chips. Plus a slew of new reliability features (such as MCA recovery).

Intel has gotten smart. They used to say Itanium was more powerful and reliable — and thus better suited for enterprise computing. And that artificially crippled Xeon (for instance: at one point Intel positioned Itanium as more reliable than Xeon). Now, from a technology perspective, Xeon can compete on an even footing with Itanium — and, accordingly, we think that Xeon will eventually obviate the need for Itanium processors. Further, we expect Xeon to, over time, challenge IBM's POWER and mainframe technologies. Make no doubt about it, Xeon is now a serious force to be reckoned with in the 64-bit computing world!

Dissolving OS Support

Some analysts and vendors may argue that the departure of Windows from the Itanium architecture means nothing from a big picture perspective. *Clabby Analytics*, however, sees this departure as the beginning of the end for Itanium. Here's why:

- The Itanium Solutions Alliance has proudly stated that five operating environments run on Itanium architecture:
 - Windows (sorry, Microsoft has just withdrawn);
 - Linux (sorry, as of its version 6, Red Hat has withdrawn support for Itanium. Technically, other Linux distributions will run on Itanium — but we rarely hear of Linux being run on Itanium);
 - HP/UX (Unix is a flat or declining market. And Unix users are converting to Linux as Linux matures. So Unix on Itanium looks like a weak strategy);
 - NonStop (NonStop does not appear to be growing, either. Again, this does not bode well for Itanium growth over time); and,
 - OpenVMS (Open VMS does not appear to be growing. And again, ...).

OS support is critical to Itanium's future growth. No Microsoft Windows means no .NET infrastructure and related applications/database growth. Withdrawal of Red Hat Enterprise Linux support stifles JAVA application development on Itanium and limits open source infrastructure adoption as well. Linux erosion of Unix is resulting in the flattening-out (or even decline) of the Unix market — stifling Unix as a future growth path for Itanium. And NonStop and OpenVMS do not appear to be gaining marketshare either. When operating systems collapse on a given architecture, so do sales of related infrastructure, management products, databases and applications. Accordingly, in our opinion, the declining ecosystem that surrounds Itanium makes Itanium's future look pretty bleak...

But Some Executives Claim that Itanium Is Now Profitable...

According to Pat Gelsinger, the former head of formerly Intel's Chief Technology officer/senior vice-president —and now president and chief operating officer of EMC's Information Infrastructure Products — Itanium is now "profitable". But perhaps when we questioned him in an open forum, we should have asked for a better understanding of what he means by "profitability".

By some estimates, a *billion dollars* has been invested in developing and marketing Itanium architecture (we doubt it was that much). And the last reliable volume/shipment

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numbers that we were able to find come from HPCwire.com (<http://www.hpcwire.com/offthewire/Itanium-Solutions-Alliance-Gains-Momentum-37338754.html>). These numbers indicate that “global shipments of Itanium-based systems have now exceeded 210,000 units, and sales continue to be strong with revenues passing \$1 billion USD” (they arrived at this amount after adding-up five quarters of revenue). But this article was written four quarters ago — and since then HP (the Itanium market leader with @85% of Itanium’s total sales) has reported huge sales declines in its Business Critical Systems Division, the group responsible for Itanium sales. This group has recorded quarterly drops of -22%, -33%, -30%, -29%.

Huge development/marketing costs estimates combined with declining sales make it hard for Clabby Analytics to believe that Itanium is now profitable from a cumulative cost perspective. We do believe, however, that it is possible, that Itanium is now profitable when contrasting Intel's current R&D and manufacturing costs to Itanium sales revenue. Next time we'll be more precise when we ask Mr. Gelsinger what he meant by profitability...

One Way to Look at This Situation: HP Is in Big Trouble

If the market consolidates as we have stated, it can be argued that HP will be in big trouble. First, it will have to ask its installed base to yet again migrate to another architecture (HP has pushed its PA-RISC users to migrate to Itanium — and now HP will have to convince its Itanium users to migrate to x86 multi-cores). But, asking its customers to again remain loyal is just the beginning of HP’s challenges.

From a product standpoint, consider that:

- Currently, HP’s operating environments are all tied to Itanium architecture. If Itanium fades away (or becomes a low-volume, specialty processor), then HP’s operating environments (more specifically, HP/UX, NonStop, and OpenVMS) ultimately become low volume specialty solutions. Continued investment in these operating systems would then need to be questioned.
- Virtualization (resource pooling) is one of the hottest market segments in the computer industry. HP’s investment in virtualization, however, is tied to the fate of its operating systems (HP’s homegrown virtualization products are part of its HP/UX operating environment).

Should Itanium take a nosedive, then HP's HP/UX virtualization products will take a nosedive — and this will make it even harder for HP to justify further investment in building its own virtualization products.

- HP also invests in Itanium systems designs (towers, blades, and high-end Superdomes). If x86 architecture undermines Itanium, then it also becomes difficult to justify further investment in Itanium-based systems designs.

To reduce design costs, HP may ultimately be forced to use its blade chassis as the only system design for Itanium-based servers. Releasing Itanium-based servers in a blade form factor would make a lot of sense because HP is already investing heavily in blade design to support its x86-based server line — so adding Itanium-based specialty processors to existing blade chassis would minimize HP's Itanium-based system/server design costs (it would not have to build Itanium towers, domes, or racks).

One way to work around this problem would be for HP to port HP/UX to x86 multi-core architecture. However, should HP decide to port HP/UX and its virtualization extensions

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onto x86, it will find itself marketing its own virtualization solutions against its already established x86 independent software vendor (ISV) partners. More specifically, HP would end up marketing its HP/UX operating environment against Microsoft Windows Server and Novell/Red Hat Linux operating environments on x86 architecture — and also against VMware, Microsoft Hyper-V, Citrix Xen, and other third party and open source virtualization solutions that have already established a solid presence in the x86 market.

On the other hand, if HP chooses not to move its HP/UX and its virtualization products to x86, then HP/UX fate would be tied to a declining systems environment (Itanium), and tied to a static or even declining operating system market. Not a good scenario...

Given this scenario, HP's choice then becomes to either:

- 1) Migrate its HP/UX virtualization code to x86 architecture in order to continue to play in the virtualization marketplace; or
- 2) Rely on its ISV's for basic hypervisor, virtualization infrastructure and management code.

In either case, HP can still “play” in the virtualization market. In the former case, HP can port HP/UX to x86 and then challenge its operating system and virtualization business partners for operating system and infrastructure revenue. In the latter case, HP can help its partners by focusing on virtualization at a higher level (such as integrating systems, storage, and network virtualization). It will be interesting to see which choice HP makes...

In the end, our projected strong market move toward x86 multi-core architecture has the potential to take HP completely out of the operating system/virtualization business altogether. Why? Because HP/UX and Open VMS customers can move to a rich alternative operating environments with strong ecosystems and a strong growth paths: Linux (on x86 multi-core, POWER, or mainframe platforms).

In the end, HP could become an x86-only vendor (like Dell) that is left marketing two operating systems on x86 architecture — Windows and Linux (neither of which HP creates). HP's remaining operating environments (OpenVMS, NonStop, and HP/UX) would essentially go into maintenance mode until they fade away.

Another Way to Look At This Situation: A Singular Focus Would Be Good For HP

Standardizing on x86 multi-core architecture will actually be good for HP. It will:

- Focus the company on two operating environments rather than five (OpenVMS, HP/UX, NonStop; Windows, Linux);
- Reduce systems and software development costs (as HP will only need to design and test its products on one architecture [Xeon]);
- Enable HP to get better volume discounts from Intel (because, by jettisoning Itanium, HP will be selling more x86 servers);
- Enable HP to better serve small and mid-sized business (SMB) markets (these markets predominantly buy x86-based servers);
- Further strengthen HP's relationship with Microsoft (HP is already the premier seller of Microsoft Windows and associated products. But by eliminating OpenVMS, HP/UX, and NonStop, HP's sales force and channel partners would no

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longer be conflicted by which operating environment to sell. For HP's field and partners, the choices would be to sell solutions on Windows or Linux on x86).

By eliminating Itanium-based servers, HP will be able to turn its attention to product integration and packaging (particularly .NET/Windows and/or Java/Linux integration/packaging). HP will be able to position itself as the premier provider of x86-based servers — and the best choice for Windows integration (HP already positions itself as the markets leader in x86 Linux). HP may also be able to reposition itself as the leader in x86 overall — appealing to small, medium, and large enterprises accordingly.

With a singular focus — and with its massive revenue stream — a move to x86 multi-cores could position HP as the premier Windows/Intel and Linux/Intel server/software provider.

Summary Observations

On the surface, Microsoft's move away from Itanium can be viewed as “who cares?” Microsoft's revenue on Itanium was probably minimal — as, likely, was HP's.

But digging a little deeper, the departure of Windows on Itanium may signal a deeper problem. Windows is now gone. Red Hat is pulling its Linux on Itanium. HP/UX, NonStop, and OpenVMS all appear to be in a state of stasis or decline. And HP's Business Critical Systems group (the group that sells Itanium-based Integrity servers) has recorded quarterly drops in sales of -22%, -33%, -30%, -29% over the past four quarters. And if server revenue is dropping, so is infrastructure, management, database, and other associated revenue.

One could argue that the decline of Itanium puts HP in dire straights in the server marketplace. But a counter argument can also be made — moving Itanium into a specialty processor position and moving more heavily into x86 multi-cores may enable the company to better focus its sales and marketing activities — and thereby increase profitability.

From our perspective, if HP is smart, it will take its existing investments in software and use those investments to augment Windows and Linux — creating distinct competitive advantages when competing against IBM and Dell. Examples: all of HP's management products can be blended with Microsoft products to augment the Windows management story. HP virtualization and provisioning technologies can be shared with Microsoft to improve Hyper-V. HP's service management and security products can be more closely integrated with Microsoft Windows or Linux to improve both environments.

Over time, *Clabby Analytics* expects that HP will become an x86 multi-core shop — or, as we like to refer to this market segment, a homogeneous server supplier. We're not sure, however, that HP has recognized this yet.

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