

Re: Non Intel & AMD Arch

Source: <http://coding.derkeiler.com/Archive/Assembler/comp.lang.asm.x86/2004-01/0218.html>

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Date: 01/15/04

Date: Thu, 15 Jan 2004 02:15:35 +0000 (UTC)

"Bryan Parkoff" <bryan.nospam.parkoff@nospam.com> wrote in message news:rwiNb.23384\$RV5.6712@fe2.texas.rr.com...

- > *Please state your opinion what you think Intel & AMD arch are better.*
- > *What about other non Intel & AMD arch? Little Endian is faster than Big*
- > *Endian on Intel & AMD arch. Why do other processors choose to use Big*
- > *Endian? How can they benefit the performance?*

Are you talking about specific processors or architectures (e.g. IA-32, IA-64, AMD-64, Alpha, MIPS, etc.)? I've always been impressed with Athlon. Athlon is like a P6-core processor with better execution bandwidth and no essentially decode constraints.

Dealing with big endian isn't slow on x86 processors. The bswap instruction was added to the 486 to allow x86 to switch between little & big endian. This is one of the simplest ALU instructions, and it's fast (1-2 cycles) on most processors.

- > *Can you claim which is the most popular -- Intel & AMD, PowerPC, or*
- > *other processors?*

Intel has somewhere around 90% of the PC market.

- > *Most modern processors use RISC, but IA32 and AMD use CISC. It looks*
- > *like that there are only two Intel and AMD CISC processors, but there are*
- > *so*
- > *many other processors that use RISC. Why do Intel decide to design IA64*
- > *that uses RISC instead of CISC. It is what Intel Technician told me that*
- > *IA64 remains at RISC only.*

Modern x86 processors borrow a lot of ideas from RISC processors. They are RISC processors with some special hardware to decompose x86 instructions into internal RISC instructions.

IA-64 is not really RISC. It is based off of VLIW which is an extension of RISC philosophy. VLIW code has groups ("molecules") of instructions ("atoms") which are executed simultaneously. In RISC architectures like MIPS, SPARC, or Alpha, the CPU determines at runtime which instructions can

execute in parallel. In a VLIW architecture that information is encoded into the instruction set. Intel calls IA-64 an EPIC design. EPIC is like VLIW, but it allows molecules to be variable-length. I don't know of any differences aside from that.

- > *Why do Intel claim that CISC is better than RISC for game compability*
- > *because games on RISC can be much slower than CISC like 386 at 20 MHz.*

Obviously non-x86 processors are not compatible with games targetted for x86. Since the PC is based on x86, most games are targetted to x86. Other systems have to emulate.

Also, I don't think many people play games on 20 MHz computers anymore.

-Matt