

Re: SGI files for chapter 11

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- *From:* "Doug Phillips" <dphill46@xxxxxxxxxxxx>
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Dan Foster wrote:

In article <4c9mm2F14tvo9U1@xxxxxxxxxxxx>, Bill Gunshannon <bill@xxxxxxxxxxxx> wrote:

I have every confidence the good folks in VMS engineering would have no great difficulty doing this port if asked.

While I have no doubt that the VMS engineers are a rather remarkable collection of Computer Scientists, I would not go so far as to say they "would have no great difficulty" doing the port. For a long time people ran around saying VMS would not run on x86. If that was true, not enough has changed to actually make a port easy.

Well, x86 has grown up a bit since Project Emerald. :)

For instance, 64-bit x86 these days has 16 64-bit GPRs (general purpose registers), at least 16 SIMD registers (a mixture of 64 and 128-bit), and some additional registers that aren't either GPRs or for SIMD.

In comparison:

VAX had 12 32-bit GPRs (encompassing both integer and floating point) and no SIMD.

Alpha had 32 64-bit integer registers and 32 64-bit floating point registers. It also had SIMD starting with PCA56 (and for EV class, starting with EV6).

IA-64 has 128 82-bit floating point registers and 128 64-bit integer registers. I'm not sure about SIMD status, offhand.

Clearly, even modern x86 falls short of both Alpha and IA-64.

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HP also has experience in doing special magic tricks in the compilers and back-ends to remap or insert synthetic code to take place of an actual physical register (at expense of some performance). Mr. Reagan wrote about some of these in a past HP Technical Journal.

While x86-64 is clearly better than the VAX for the registers, it may not be sufficiently significantly better.

I bet it *could* be made to work on x86 if given sufficient interest and money, but would guess it'd still be rather painful.

-Dan

I hope we've all read the excellent Technical Journal V6 article about the porting:

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http://h71000.www7.hp.com/openvms/journal/v6/porting_openvms_to_integrity.html

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