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## NAS News – Dec 09

### Intel is Coming to DSP

#### ***Altivec: the end of the line?***

With the G4 generation of the PowerPC dominating the embedded HPC market for nearly a decade, we have been looking at how well current low power Intel processors compare, in particular Core 2 duo mobile processors such as the SL9400. If you look at the results in our [White Paper](#) you will see that Intel have been rapidly bringing out low power versions of their processors, allowing their advantages of higher clock speed, larger L2 cache and faster front side bus to be increasingly relevant in DSP applications. With the end of altivec development announced, we're now seeing an increasing number of board manufacturers announcing Intel-based products

#### ***Atom: the next big DSP family?***

With the current interest in maximising performance per watt, the obvious processor family to watch at the moment is the Atom. We have run VSIPL benchmark timings on both the N and Z series, comparing them with both the PPC 8641D and the SL9400. Have a look at the results in our White Paper [Intel® Atom™ Processor Performance for DSP Applications](#) to see how well the Atom performs in this respect.

### **We can help: Conversion aids**

If you are moving from PPC to Intel, we have a range of aids to help, including:

#### ***VSIPL, CSIPL and FFTW libraries***

Our VSIPL-conformant Intel libraries are fully optimised for Intel's Core Duo family (i7-optimised version coming) and already multithreaded. They are call-compatible with our PowerPC libraries and *fast*: a 1K complex FFT runs at 8GFlops on the SL9400.

## ***Altivec2sse.h***

Altivec programmers use the include file `altivec.h` to access the altivec facilities. We've now got the Intel plug-in replacement: `altivec2sse.h` provides the same facilities, but targets Intel SSE instructions. It's now being used by major board manufacturers to help convert customers codes. It's free, and available via our web site [here](#).

## ***PowerPC/Altivec Assembler Compiler***

If your PPC application uses explicit assembler blocks rather than just `altivec.h`, a second porting aid is on the way. We're developing an Intel-funded PPC-Intel assembler compiler. It's currently a work in progress; get in touch if you're interested in details.

## **Liberator Users**

Two more major board vendors have now signed up to use our Library Generator Technology on Intel systems. Join them now and stay ahead. [Liberator](#) (**library generator**) is our system for automatically generating numerical libraries. Liberator produces highly efficient libraries for a range of processors together with a variety of API's (Application Programming Interface). Liberator also generates test and timing programs, together with standard documentation. It allows DSP libraries to be produced and updated cost effectively without loss of efficiency: indeed, Liberator –produced libraries typically out-perform hand coded libraries.