



ESA IP cores workshop – 15/06/05

IP use for space applications

Nicolas RENAUD

AT697E LEON2-FT processor

- ⬆ **Use of LEON2-FT Sparc V8 IP**
- ⬆ **PCI to AMBA interface**

Some IP related issues during the AT697E development

- ⬆ **Various bug corrections (cores & test benches)**
- ⬆ **Hard to debug, no description of the test benches content**
- ⬆ **Support**
- ⬆ **Simulation results varying with the synthesis flow (X propagation)**

Non ESA IP implemented by our customers on some ASICs

- ⬆ **ADV/Transwitch 1553 BC/RT hard IP**

Soft IPs very useful for “simple” functions

- ⬆ Communication protocols, EDAC...
- ⬆ Can be customized
- ⬆ Reuse
- ⬆ Differentiation
- ⬆ But, often, doesn't match the user needs

Hard blocks more suited for complex functions

- ⬆ Processor, signal processing
- ⬆ IP validated once and for all, specified and guaranteed
- ⬆ Design simplified for customers, which can focus on their applications
- ⬆ Shorter and controlled design cycle time
- ⬆ Reduced risk of redesign

Recommendations

The re-use strategy is a must with thinner technologies

IP vendors and ASICs manufacturers can help, but...

⬆ **See previous slides...**

In space applications, for complex blocks, functional commonalities between multiple users is very unlikely...

Therefore, this strategy can be implemented at the customer side only: it becomes a corporate strategical decision allowing:

- ⬆ **To disseminate the past experiences within the company**
- ⬆ **To Focus on real new added value features**