

Single-threaded Applications

- Most of today's applications
- Well understood optimization techniques
- Advanced development, analysis and debug tools
- Conceptually, easy to think about

Parallel Applications

- Small number of applications (worked by experts for 10+ yrs)
- Awkward development, analysis and debug environments
- Parallel programming is hard!
- Amdahl's law is still a law
- SW productivity is already in a crisis → this worsens the problem!

Understanding the appropriate rate of transition is what will be important to real customers

- Power is a first-order constraint on all chip designs
 - Mobile – *battery life, heat dissipation, cost*
 - Desktop – *performance limited by TDP specifications*
 - Server – *multi-core designs push power up quickly*
- AMD is investing heavily Low Power Design techniques
 - Process technology, Circuits, Architecture, Methodologies
 - Techniques will be leveraged across the board
- AMD will make use of several different CPU core designs:
 - Value Core – *good enough* performance at a power budget
 - Performance Core – maximum performance and throughput
 - Pervasive Core – x86 everywhere!

- **AMD is focused on real customer requirements and value**
 - Today, value goes way beyond just performance
 - AMD is focused on *customer-centric innovation* and *value*
- **AMD is investing heavily in future design points**
 - Next generation designs well underway and will extend our lead
 - Further generation designs already in the works as well
- **Multi-core and Multi-threading are important for throughput**
 - But, customers will continue to value increasing single-thread performance as well for many years to come