



AMD Financial Analyst Day

APU Strategy

Chuck Moore, Corporate Fellow and CTO Technology Development

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Architecture Innovation is Alive and Well at AMD

- AMD Fusion™ Architecture – *Bringing the best of CPUs and GPUs together*
- “Bobcat” Core – *Mainstream performance at ultra-low power levels*
- “Bulldozer” Core – *High-end performance for traditional and throughput workloads*



Modern Workloads Span Video, Graphics and Compute

YouTube



hulu

AVCHD

Video

- Superb HD playback
- Video now 1/3 of all consumer Internet traffic



Microsoft®
DirectX



Graphics

- 3D user interfaces
- Immersive gaming
- DirectX® 11



Adobe



Picasa

KRONOS
GROUP



symantec

Compute

- Enhanced multimedia
- Parallel compute breakthroughs
- Efficient multi-core

NOTE: Application names and logos are used for illustrative purposes only and no endorsement of AMD technology is implied.

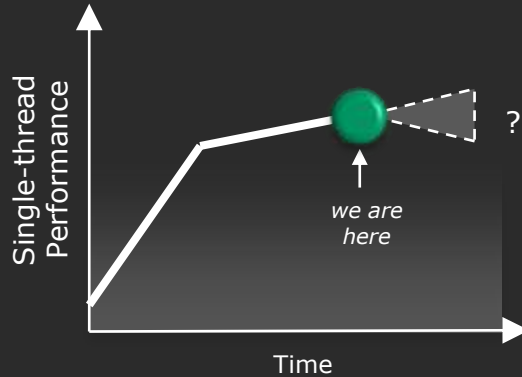


A New Era of Processor Performance

Single-Core Era

Constrained by:

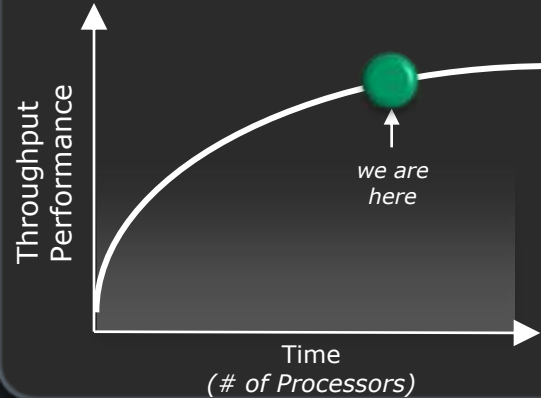
- ✗ Power
- ✗ Complexity



Multi-Core Era

Constrained by:

- ✗ Power
- ✗ Parallel SW availability
- ✗ Scalability



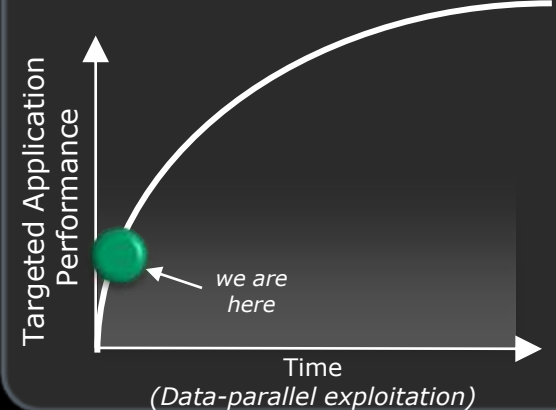
Heterogeneous Systems Era

Enabled by:

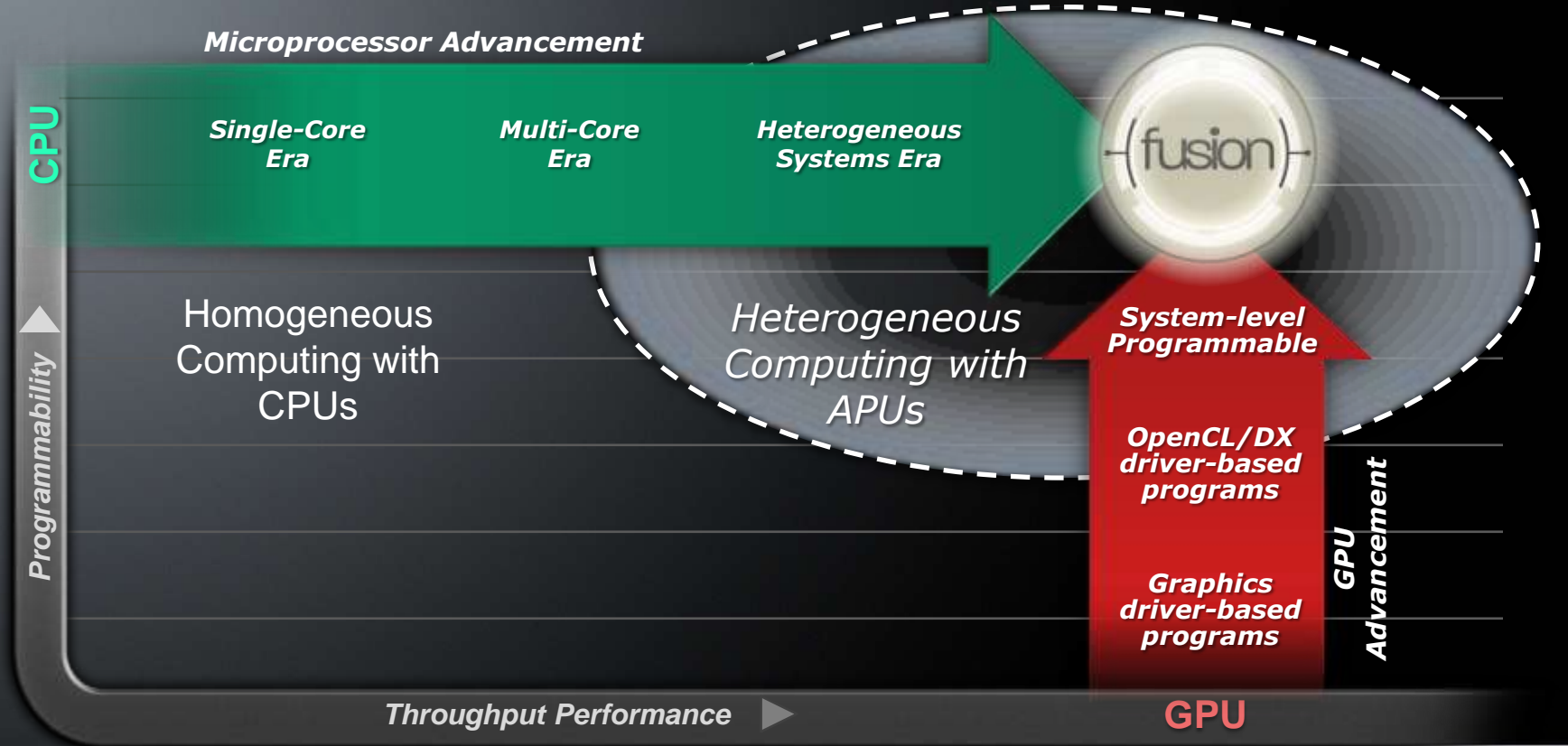
- ✓ Abundant data parallelism
- ✓ Power efficient GPUs

Constrained by:

- ✗ Programming models
- ✗ Communication Overheads



AMD Fusion™ APUs: Delivering Heterogeneous Computing



Future State for AMD APU



**GPU
Leadership**

- **Throughput Optimized**
- **Compute Density**
- **Memory Bandwidth**

- **Compute Quality**
- **Fine Grain Computation**



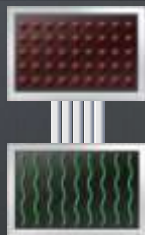
VALUE



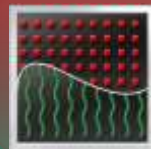
POWER



**HYBRID
COMPUTATION**



"Llano"-class Fusion APU



Future Implementation



*Optimized for even better
programmability*



**CPU
Leadership**

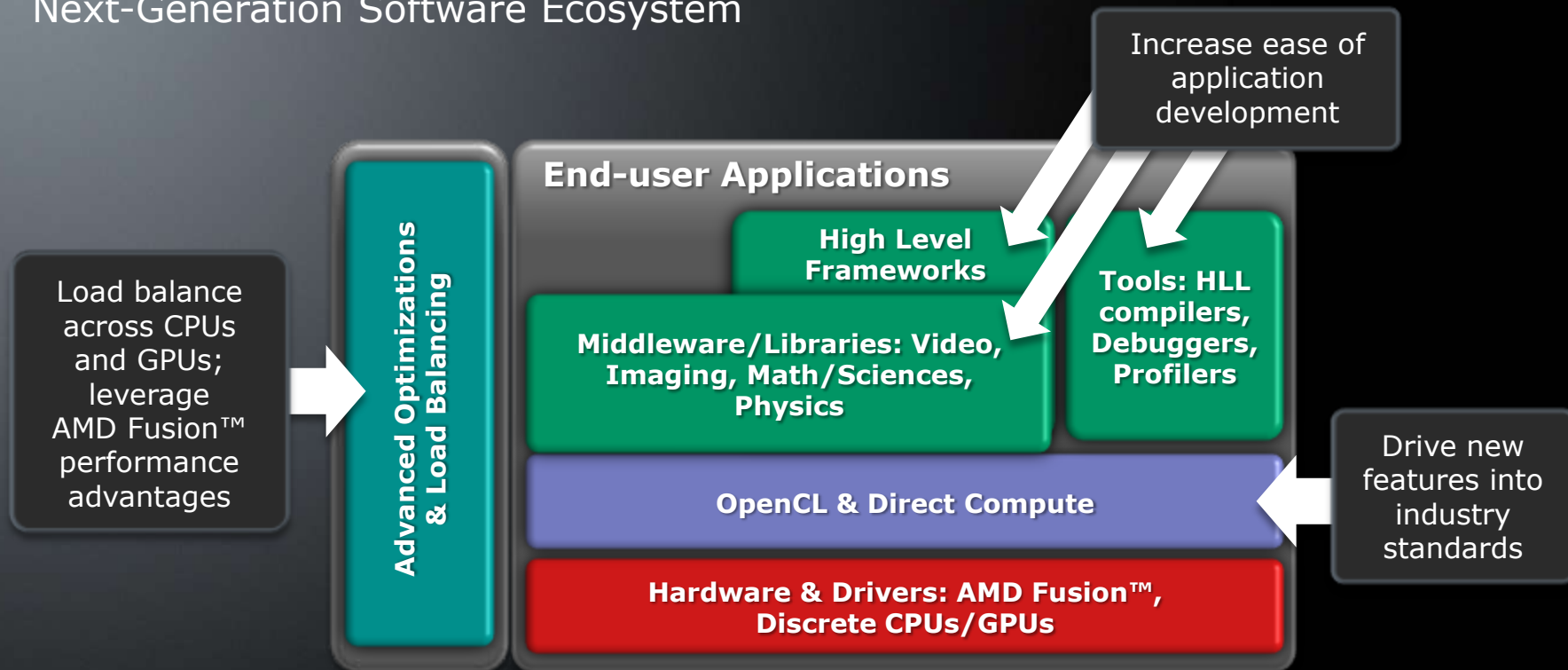
- **Compute Quality**
- **Fine Grain Computation**
- **Sequentially Optimized**

- **Compute Density**
- **Memory Bandwidth**



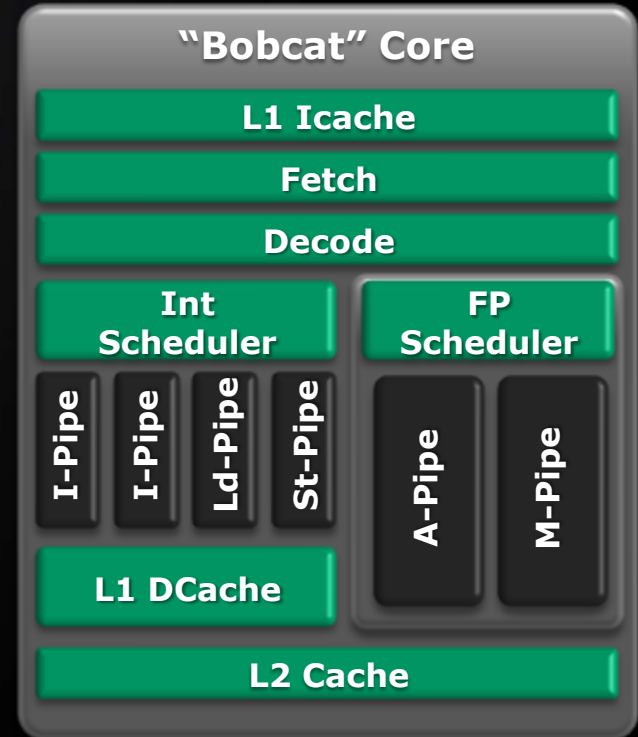
Heterogeneous Computing:

Next-Generation Software Ecosystem



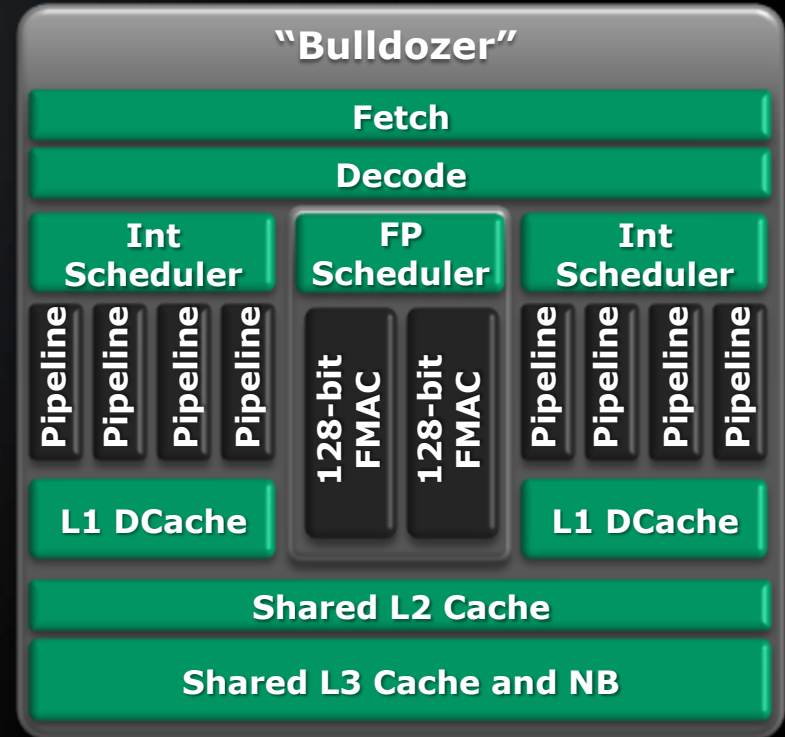
“Bobcat” x86 Core: Small, Efficient and Strong

- Very low power design
 - Sub one-watt capable
- 90% of today’s mainstream performance in less than half of the silicon area
- Synthesizable / Easy to Reuse
- Complete ISA support
 - SSE1-3 and virtualization
- 2011 / notebook APU / “Brazos”



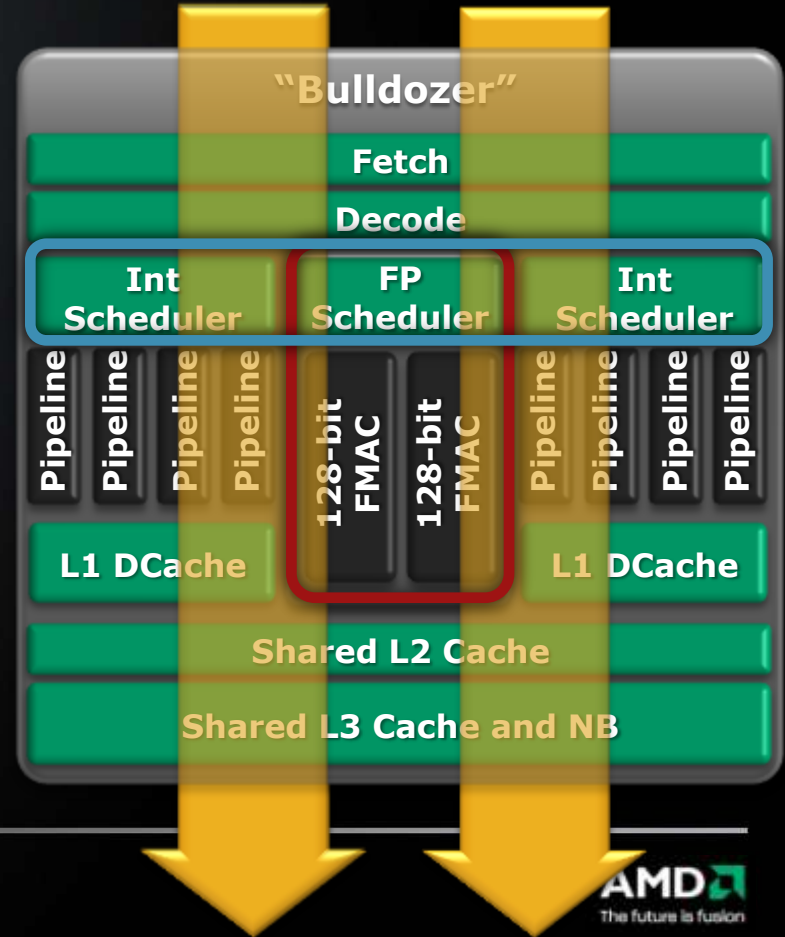
"Bulldozer" x86 Architecture: AMD's Latest Leap Forward

- Two tightly linked cores share resources to increase efficiency
- ISA extensions, including FP "FMAC"
- Extensive new power mgmt innovations
- 32nm SOI with high-K metal gate
- 2011 / desktop and server



"Bulldozer" x86 Architecture: AMD's Latest Leap Forward

- A dedicated integer core for each parallel thread
- Flexible floating point unit that can be dedicated or shared
- Independent integer schedulers and a floating point scheduler improve scalability by efficient execution



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Thank You!

