



# AMD Financial Analyst Day

## AMD Server Strategy

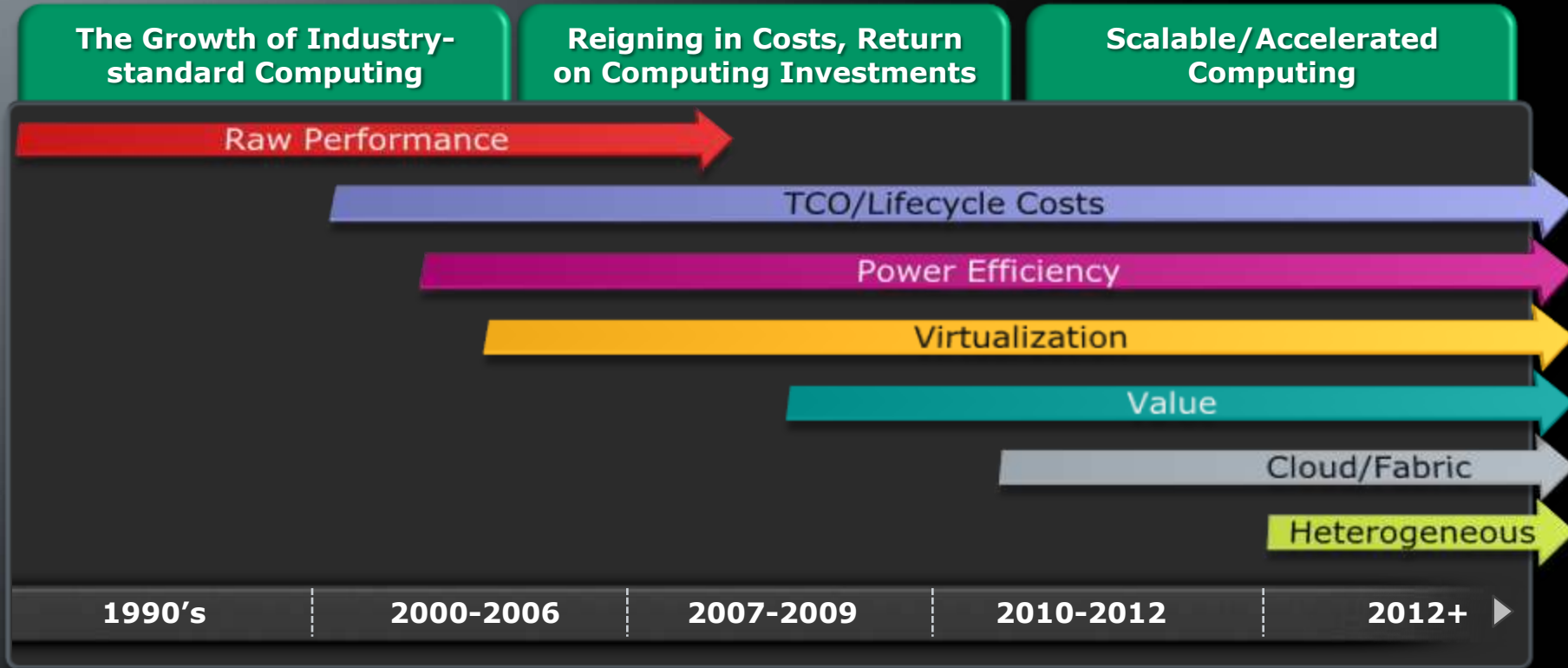
Patrick Patla

Vice President and General Manager, AMD Server Business

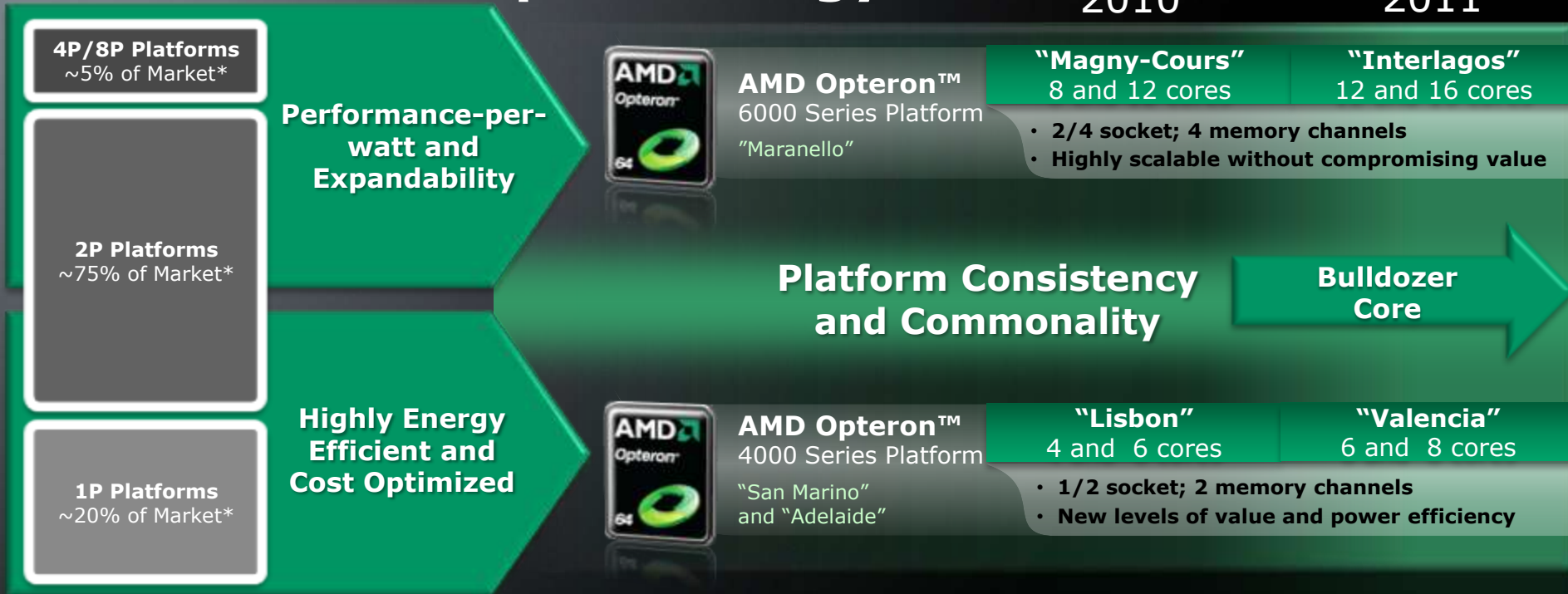
November 11, 2009



# Server Market Demands Have Been Changing



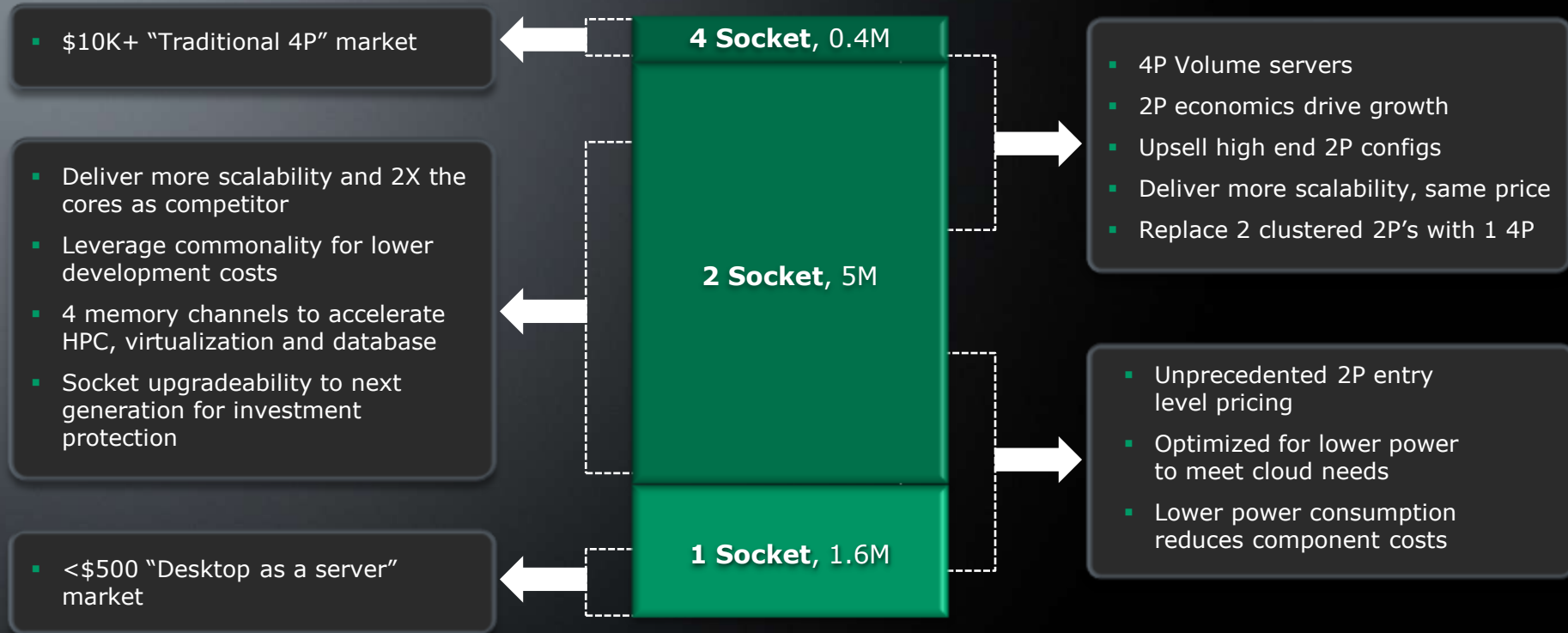
# Goals for AMD Server in 2010-2011: Server Sweet Spot Strategy



\*AMD internal estimates of total server market as of Q309



# 2010: Targeting the Volume Server Market



Source: IDC Workload Study and Server Forecast



# Workload-based Platform Targeting



**AMD Opteron™**  
6000 Series Platform

## Virtualization

Scalability and efficiency

## Web / Cloud

Large, dense deployments,  
power sensitive

## IT Infrastructure

Power and cost efficiency for  
large deployments

## Database

Optimized for multi-user  
applications

## HPC

Memory and compute-bound  
applications

## Email/Collaboration

Handle growing messaging  
needs



**AMD Opteron™**  
4000 Series Platform



# The Future of Enterprise Computing: AMD Opteron™ 6000 Series Platform



**8- and 12-core x86 server processors**



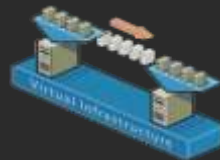
**Incredible efficiency and threading for demanding data-intensive workloads**



**33% more memory channels than Nehalem EP\***



**A host of new power efficiency features**



**New virtualization features**



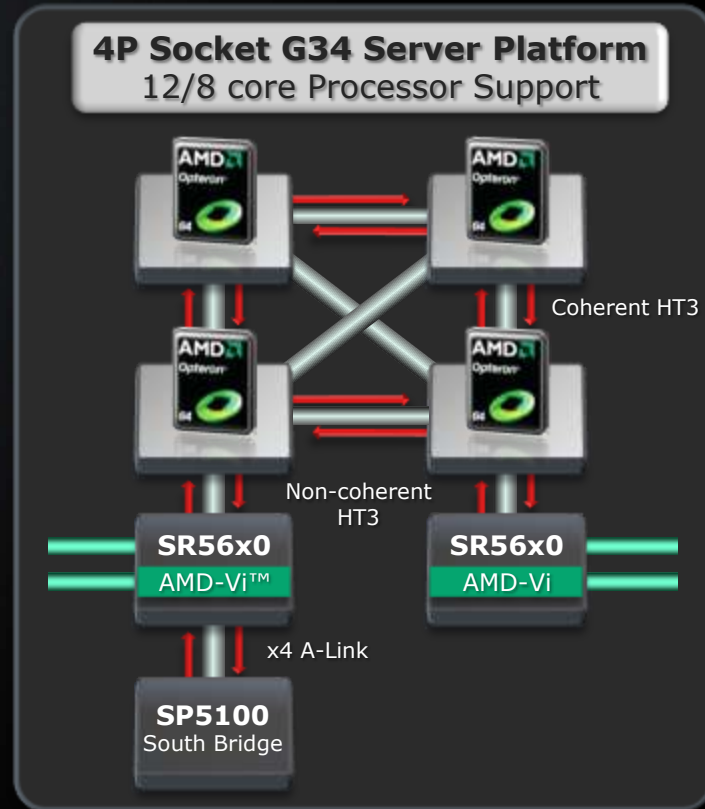
**Platform consistency between series and platform generations for a competitive advantage**

\*Three memory channels for Nehalem EP vs. four memory channels planned for AMD Opteron™ 6000 Series platform.  
[http://download.intel.com/pressroom/kits/events/idffall\\_2008/SSmith\\_briefing\\_roadmap.pdf](http://download.intel.com/pressroom/kits/events/idffall_2008/SSmith_briefing_roadmap.pdf)



# AMD Opteron™ Processor – 6000 Series

- Target: Enterprise Class 2-way and 4-way Servers
  - Twelve-core and Eight-core 12M L3 Cache
  - AMD CoolCore™ Technology, Enhanced AMD PowerNow!™ Technology, Enhanced C1 state, AMD CoolSpeed™ Technology, APML
  - Quad-Channel LV & U/RDDR3, ECC, On-line spare
  - Up to 3 DIMMs/channel, 12 per CPU
  - Expected platforms 2P/2U, 2P Tower, 4P rack, 4P Blade
- **Single Series** for performance DP and MP platforms
  - 2P economics for 4P servers
  - Compelling price/performance for volume market
- G34 Socket Infrastructure
  - Performance-optimized Power/thermals
  - Quad 16-bit HT3 links, up to 6.4 GT/s per link
  - AMD SR56x0 chipset with AMD-Vi™ and PCIe 2.0



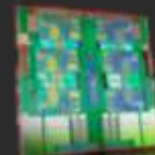
# The AMD Opteron™ 4000 Series Platforms: Advanced Levels of Power Efficiency and Value



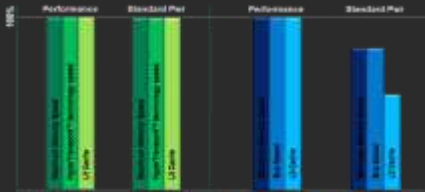
**The new AMD Opteron™ 4100  
Series processor and C32 socket**



**Planned Low and Ultra-low  
power platform choices**



**The first and only sub 6-watt  
x86 server core\***



**No compromise on feature sets**



**Aggressively priced  
to give you the edge**



**Consistency with G34 and  
planned compatibility with  
future generations**

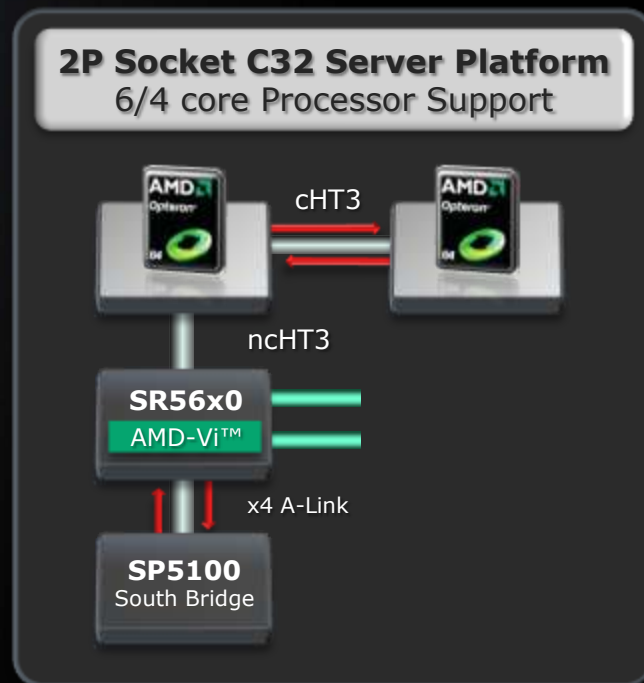
\*Based on Six-core AMD Opteron™ EE 4000 Series processor expected TDP of 35W





# New Product: AMD Opteron™ 4100 Series Processor

- Target: Blades, Twins, cost-effective DP Servers
  - Six and Four-core, 6M L3 Cache
  - AMD CoolCore™ Technology, Enhanced AMD PowerNow!™ Technology, Enhanced C1 state, CoolSpeed™ Technology, APML
  - Dual-Channel LV R/UDDR3, ECC
  - Up to 2 DIMMs/channel, 4 per CPU
  - Designed for thermally constrained environments
- **Single Series** for UP and DP platforms
  - Enterprise scalability and features for 1P
  - Defines the new 2P cloud/cluster market
- New C32 Socket Infrastructure
  - Low power/thermal bands
  - Dual 16-bit HT3 links, up to 6.4 GT/s per link
- Workload Optimized Platforms
  - SR5650 chipset for power efficient cloud
  - SR5670 chipset for expandable SMB
  - SR5690 for high I/O systems

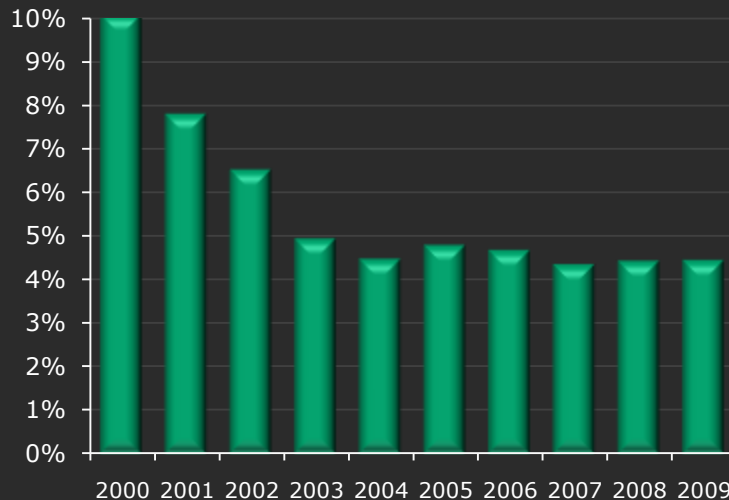


# AMD has Been in the Center of Change in the 4P and Above Market

- The 4P market has been shrinking
  - 4P platforms have been slow to adapt to the changing market
  - 2P servers deliver increasing performance and functionality with more power efficiency
  - 2P price/performance is too compelling to ignore
- AMD is bringing a new paradigm to the 4P market
  - Volume 4P – 4P performance with 2P economics\*
  - Scalable 4P systems that can compete for the top half of the 2P market, delivering advanced density, efficiency and TCO

\* Based on standard power Six-Core AMD Opteron™ processor Model 2435 1ku pricing of \$989 as of 10/19/09 vs. standard power AMD Opteron™ processor Model 6172 ("Magny-Cours") 1ku planned pricing of \$989 at time of launch.

## 4P x86 Server Mix

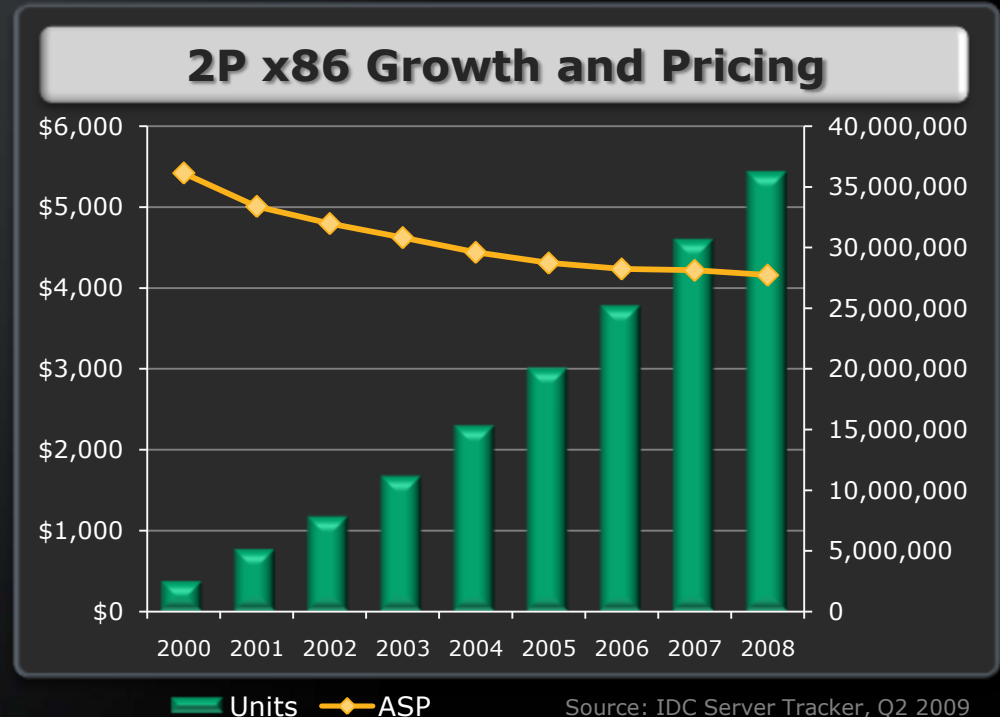


Source: IDC Server Tracker, Q2 2009

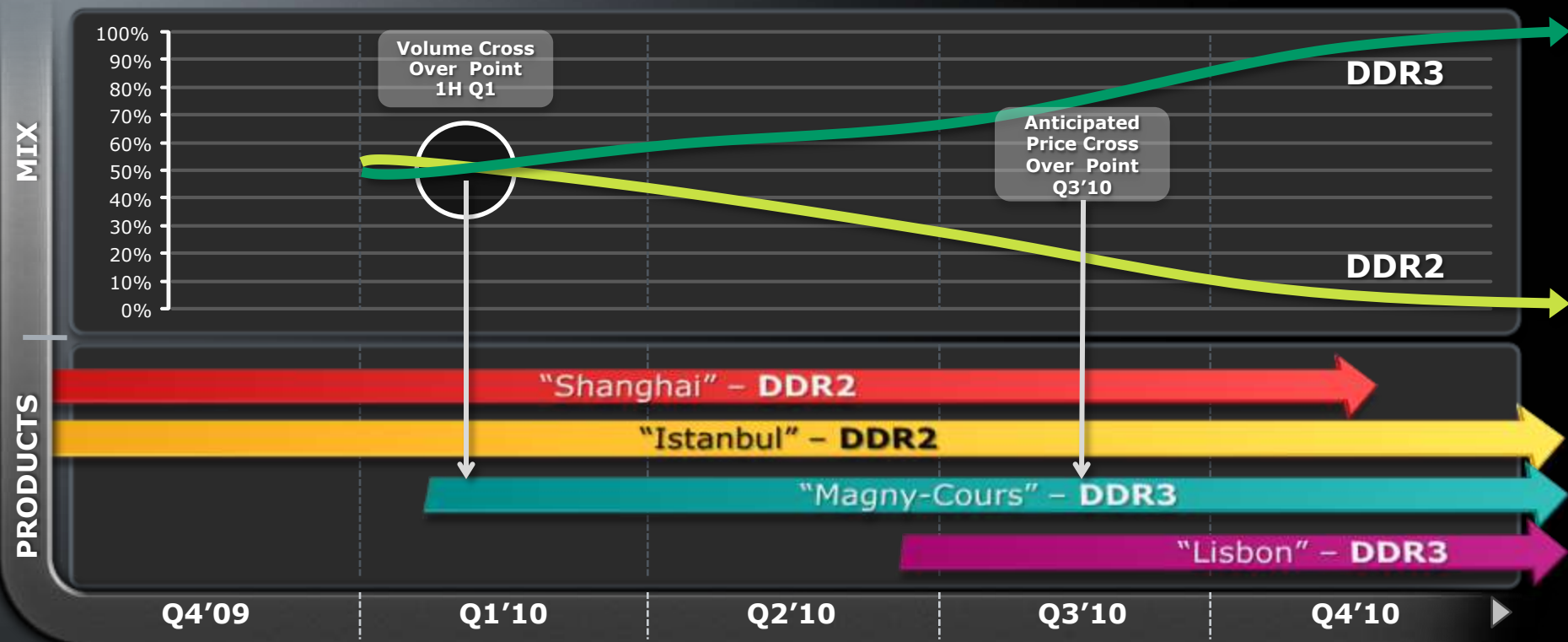


# A Leading Strategy to Grow 2P Market Share

- 2P server prices have dropped 29%, fueling 95% unit growth
- AMD is uniquely positioned to grow share in this market
  - Mainstream 2P G34 platforms deliver outstanding price/performance to the mass market
  - Volume 4P G34 tackle the high end with 4P performance and 2P economics
  - Value 2P C32 platforms bring value to a whole new level



# Making the Right Call on Memory Transitions



Source: Aggregated data and projections from DRAM Suppliers



# Platforms Goals Drive Value for AMD and Introductory Partners

CUSTOMER VALUE

## Complete Platform



**OEMs:** Better supported solution  
**AMD:** Greater economic value

## Processor and Chipset



**OEMs:** Simplified supply chain  
**AMD:** Greater revenue per system

## Processor Only



**OEMs:** Components  
**AMD:** Volume



# Enhanced Integrated Memory Architecture Benefits Virtualization, Database and HPC

## Memory Bandwidth

(GB/s in STREAM benchmark)

4/8 Socket

4P AMD Opteron™ 61XX

8P AMD Opteron 84XX

4P AMD Opteron 84XX

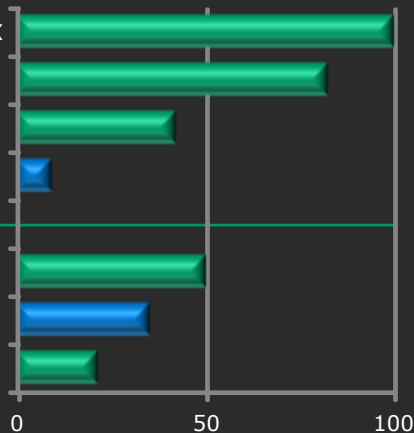
4P Intel Xeon 74XX

2 Socket

2P AMD Opteron 61XX

2P Intel Xeon 55XX

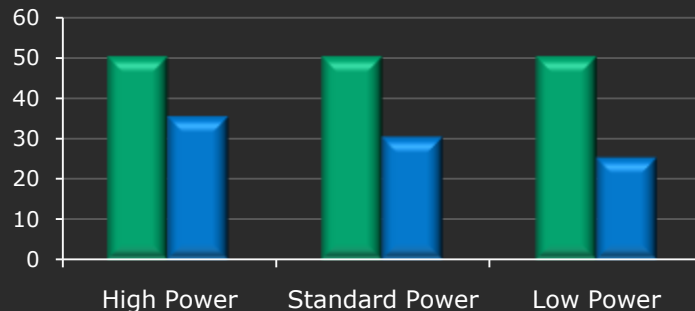
2P AMD Opteron 24XX



**Greater peak performance...**

## Memory Bandwidth

(GB/s in STREAM benchmark)



■ 2P AMD Opteron 6100 ■ 2P Intel Xeon 55XX

**...and consistency across power bands**

1) Based on measurements in AMD Performance Labs as of October 6, 2009. Please see backup slides for configuration information.



# Server Roadmap

65nm

45nm

32nm

Yellow text denotes new feature

## 4-way Performance Platform

### "Shanghai"

4-Core

- 6M L3
- 3x HT-3 (4.4GT)
- AMD-V technology
- RDDR2 (Dual-Channel)

### "Istanbul"

6-Core

- 6M L3
- 3x HT-3 (4.8GT)
- HT Assist
- AMD-V technology
- RDDR2 (Dual-Channel)

### "Socket F (1207)"

"Six-Core AMD Opteron™ Processor w/AMD Chipset"

- AMD SR56x0 • AMD SP5100
- APML Enabled (Istanbul Only)

## 2 and 4-way Enterprise/ Mainstream Platform

### "Magny-Cours"

8/12-Core

- 12M L3
- 4x HT-3 (6.4GT)
- U/RDDR3 & LV RDDR3 (Quad-Channel)
- Cool Speed
- C1E
- AMD-V
- HT Assist

### "Interlagos"

12/16-Core

New Core

### "Maranello"

"Maximum Scalability"

- AMD SR56x0
- AMD SP5100
- Advanced Platform Management

## 2-way Mainstream Platform

### "Shanghai"

4-Core

### "Istanbul"

6-Core

### "Socket F (1207)"

"Six-Core AMD Opteron™ Processor with AMD Chipset"

## 1 and 2-way Energy Efficient/ Cost Optimized Platform

### "Lisbon"

4/6-Core

- 6M L3
- 2x HT-3 (6.4GT)
- U/RDDR3 & LV RDDR3 (Dual-Channel)
- Cool Speed
- C1E
- HT Assist
- AMD-V

### "Valencia"

6/8-Core

New Core

### "San Marino" (Std/HE/EE)

"Optimized Energy Efficiency"

- AMD SR56x0
- AMD SP5100
- Advanced Platform Management

### "Adelaide" (EE Only)

"Ultra Low Power"

- AMD SR5650
- AMD SP5100
- LV DDR3
- HT1

### "Budapest"

4-Core

### "Suzuka"

4-Core

- 6M L3
- DDR3
- 1xHT3
- AMD-V technology

### "Socket AM2+"

### "Buenos Aires"

- AMD SR56x0
- AMD SP5100

Platform Segment

2009

2010\*

2011\*



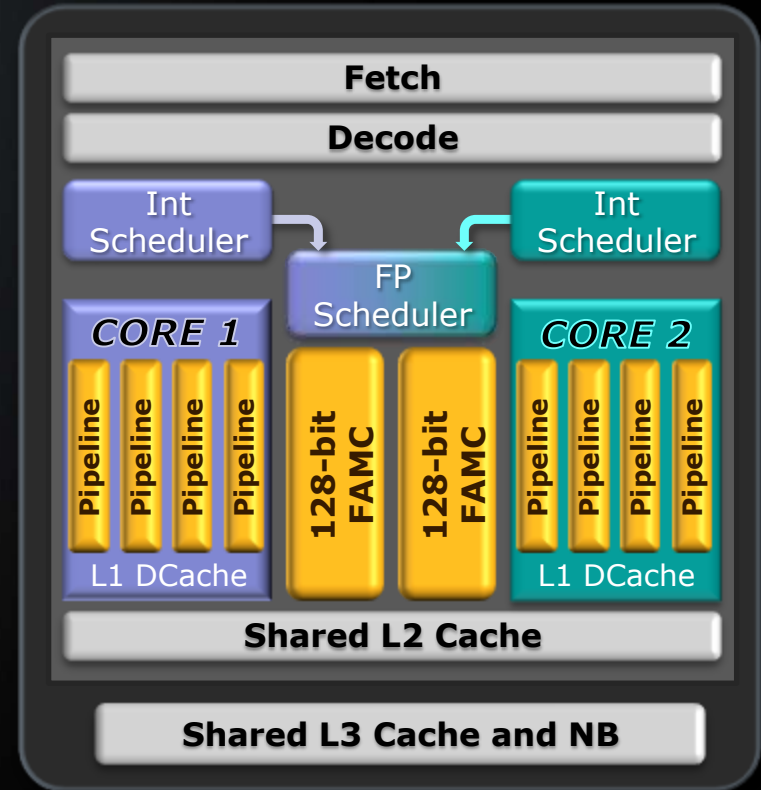
15 | AMD Financial Analyst Day | November 11, 2009

\* Planned roadmaps

AMD  
The future is fusion

# Introducing the “Bulldozer” Architecture

- “Bulldozer” is an innovative new architecture that helps to dramatically reduce the thread-interference
- Only AMD has announced plans to deliver the most scalable industry-standard processor architecture with true core functionality
- “Bulldozer” is a modular architecture that creates the building blocks of the next generation of processor designs





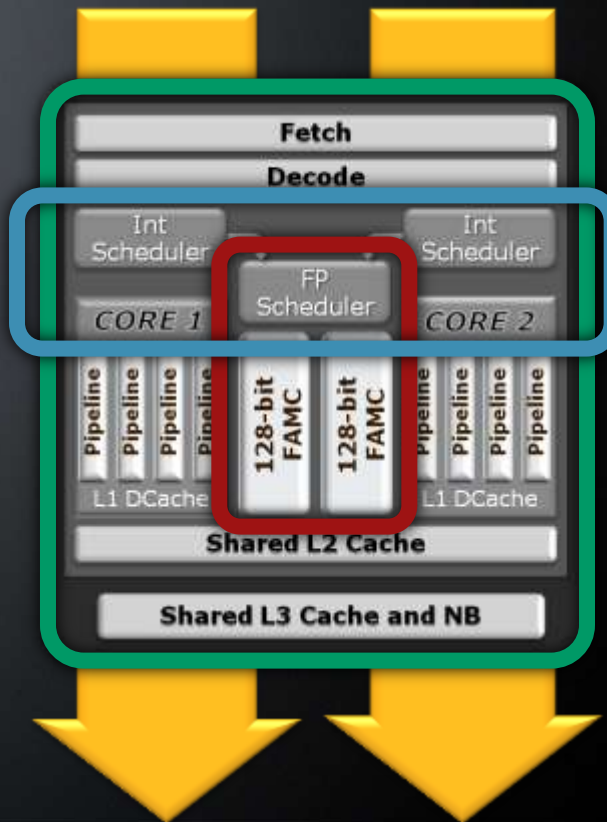
# Designed for Scalability and Performance

## "Bulldozer" module

Two cores in a single unit that enables two simultaneous threads, the building blocks of a "Bulldozer" die

## Parallel Threads

The ability to execute two threads on two discrete, unshared cores without compromising or increasing bottlenecks



## Flex FP

A flexible floating point unit that can be dedicated OR shared between the two cores per cycle

## Dedicated Scheduler

Independent integer schedulers and an FP scheduler improve scalability by efficient execution



# AMD's Focus on the Volume Market

## For Mainstream Customers

AMD 8-core and 12-core G34 platforms deliver superior price/performance for business applications

## For Performance Customers

Only AMD is planning to deliver 4P servers with 2P economics, fundamentally changing the definition of the 2P market forever

## For Value Customers

AMD delivers new 2P price points, delivering outstanding value and low power consumption



# Customer Support for AMD Strategy

*“We’ve been able to provide remarkable value to our customers, in part due to AMD’s platform consistency and scale up/scale out capability.*

*Our HPC customers can quickly and productively utilize all the processor performance we can provide and they are looking forward to the next wave of innovation with the 8- and 12-core “Maranello” platform.*

*For our part, we are very happy with what we’re seeing in the early silicon and plan to have systems available in 1H10.”*

**Barry Bolding,**  
Vice President, Scalable Systems

**CRAY**



# Summary

- Continued strong execution
  - AMD Opteron™ 6100 Series processor has very healthy silicon and expecting a Q1 launch
  - AMD Opteron™ 4100 Series processor on track for planned Q2 launch
- Two unique platforms tied to a common architecture address a wide range of diverging application needs
  - AMD Opteron™ 6000 Series platform to address highly threaded, scalable applications
  - AMD Opteron™ 4000 Series platform to address power efficiency and value for cloud, dense and growing environments



# Back-up



# STREAM (Memory Bandwidth) – From slide 14

- 2 x Six-Core AMD Opteron™ processors (“Istanbul”) Model 2435 in Supermicro A+ Server 1021M-UR+B server, 16GB (8x2GB DDR2-800) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 4 x Six-Core AMD Opteron™ processors (“Istanbul”) Model 8435 in Tyan Transport TX46 server, 32GB (16x2GB DDR2-800) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 8 x Six-Core AMD Opteron™ processors (“Istanbul”) Model 8435, AMD 5690 Chipset reference design platform, 64GB (32x2GB DDR2-800) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 2 x AMD Opteron™ processors (“Magny-Cours”) Model 61xx, AMD 5690 Chipset reference design platform, 32GB memory, SuSE Linux® Enterprise Server 10 SP2 64-bit.
- 4 x AMD Opteron™ processors (“Magny-Cours”) Model 61xx, AMD 5690 Chipset reference design platform, 64GB memory, SuSE Linux® Enterprise Server 10 SP2 64-bit.
- 2x Intel Xeon processors (“Gainestown”) Model X5570 in Supermicro SuperServer 6026T-NTR+ server, 24GB memory (6x4GB DDR3-1333) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 2x Intel Xeon processors (“Gainestown”) Model E5540 in Supermicro SuperServer 6026T-NTR+ server, 24GB memory (6x4GB DDR3-1066) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 2x Intel Xeon processors (“Gainestown”) Model L5520 in Supermicro SuperServer 6026T-NTR+ server, 24GB memory (6x4GB DDR3-1066) memory, SuSE Linux® Enterprise Server 10 SP2 64-bit
- 4x Intel Xeon processors (“Dunnington”) Model X7460 in Supermicro X7QC3+ motherboard, 32GB (16x2GB FBDIMM) memory, SuSE Linux® Enterprise Server 10 SP1 64-bit



# Forward-Looking Statement

This presentation contains forward-looking statements concerning AMD and technology partner product offerings which are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are commonly identified by words such as "would," "may," "expects," "believes," "plans," "intends," "strategy," "roadmaps," "projects" and other terms with similar meaning. Investors are cautioned that the forward-looking statements in this presentation are based on current beliefs, assumptions and expectations, speak only as of the date of this presentation and involve risks and uncertainties that could cause actual results to differ materially from current expectations. With respect to AMD, risks include the possibility that Intel Corporation's pricing, marketing and rebating programs, product bundling, standard setting, new product introductions or other activities targeting AMD's business will prevent attainment of AMD's current plans; customers stop buying AMD's products or materially reduce their operations or demand for its products; AMD will be unable to develop, launch and ramp new products and technologies in the volumes and mix required by the market and at mature yields on a timely basis; standards promulgated by open standards will be adopted at rates slower than currently projected, demand for computers and, in turn, demand for AMD's products will be lower than currently expected; there will be unexpected variations in market growth and demand for AMD's products and technologies in light of the product mix that it may have available at any particular time or a decline in demand; and AMD will be unable to maintain the level of investment in research and development that is required to remain competitive. Investors are urged to review in detail the risks and uncertainties in AMD's Securities and Exchange Commission filings, including but not limited to the Annual Report on Form 10-K for the fiscal year ended December 27, 2008.

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