



AMD 's Next Generation Processor

May , 2002



Founded:	1969
Headquarter:	Sunnyvale, USA 14 R&D and Manufacturing Locations WW
WW Employees:	~14.000
Revenue:	~€4B in 2001 #10 in the industry
Market share:	>22% (2001)
Ship:	>9M processors per quarter
Research R&D.:	>€ 2.8M within the last five years

Made in Europe...AMD Dresden



Start: 1999 one of the most complex Semiconductor FAB

Employees: 1800 (30% out of unemployment)



Investment: ~\$2B (one of the largest US investments in Germany)

Production: State of the art Microprocessors, Athlon, Duron
More than 15 million CPUs shipped to today



AMD Server Core Roadmap



“Sledge Hammer”

SledgeHammer MP
 8th Generation
 2-8 way MP
 x86-64 Technology
 0.13 μm SOI

“Hammer”

ClawHammer DP
 8th Generation
 1-2 way MP
 x86-64 Technology
 0.13 μm SOI

Athlon™ MP

Palomino
 266 MHz FSB
 7th Generation
 0.18 μm, OPGA
 760 MPX Chipset

Thoroughbred
 266 MHz FSB
 7th Generation
 0.13 μm
 760 MPX Chipset

Barton
 266 MHz FSB
 7th Generation
 0.13 μm
 760 MPX Chipset

1H02

2H02

1H03



X86-64 technology

What is x86-64 technology?



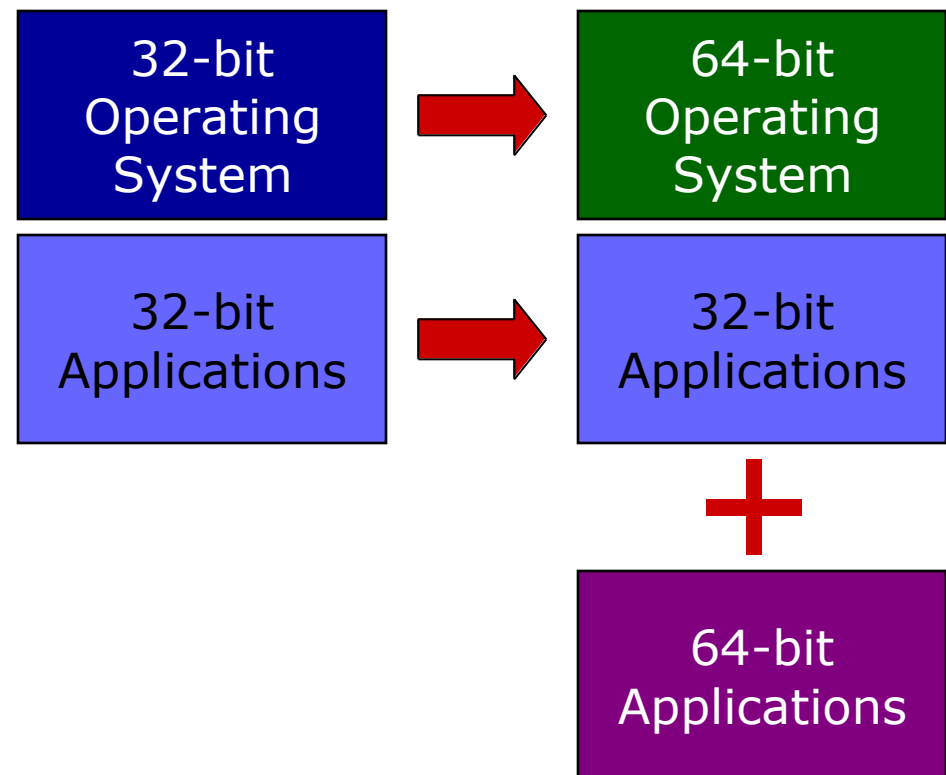
x86-64™ is an Instruction Set Architecture (ISA) that offers:

- **Uncompromising support for 32-bit and 64-bit computing needs**
 - Full native performance with 32-bit applications and Operating Systems
 - Full x86 compatibility with BIOS, OS, applications, drivers, etc.
- **x86-64 mode (64-bit mode) built on x86**
 - Similar to the previous extension from 16-bit to 32-bit
 - Vast majority of opcodes and features unchanged
 - Integer/Address register files and data paths are native 64-bit
 - 48-Bit Virtual Address Space, 40-Bit Physical Address Space
 - *Support from Linux and Microsoft*
- **Low cost and low complexity in network management**
- **32-bit, x86 performance**
- **64-bit, x86-64 instruction execution when needed**
- **Public specification**
 - www.x86-64.org

X86-64 Technology Protects Investment in Software



- Provides investment protection for users who have invested in 32-bit application software
- Allows users to continue operating existing 32-bit applications
- Current 32-bit applications will work on today's 32-bit operating systems as well as tomorrow's 64-bit operating systems
 - Windows XP
 - Windows 2000
 - Future 64-bit Windows
 - 32-bit and 64-bit Linux
- Enables a gradual application transition to 64-bits as required by end user individual needs.
- Doesn't require special hardware or investment in a proprietary infrastructure



AMD Hammer™ Processor Overview



- **The AMD Hammer processor is a next-generation system architecture which is designed to provide a foundation for market-specific solutions:**
 - Workstation (1-2 way), will provide exceptional performance for advanced applications
 - Server (1-8 way), with enterprise-level reliability for mission-critical applications
- **Leading-edge, native 32-bit performance**
 - Integrated Memory Controller
 - HyperTransport™ technology
- **Compelling 64-bit migration strategy providing full 64-bit performance**
 - x86-64 Instruction Set Architecture
 - Allows for gradual, seamless migration to 64-bit applications
- **Ease of implementation**
 - HyperTransport technology
 - Open Standards

Key Architecture Innovations

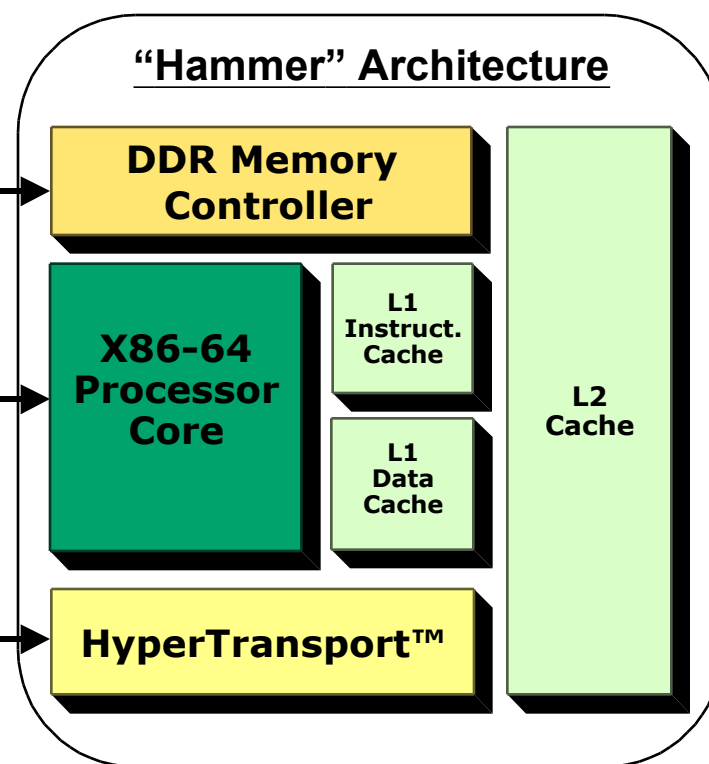


AMD's next-generation "Hammer" architecture integrates key system elements:

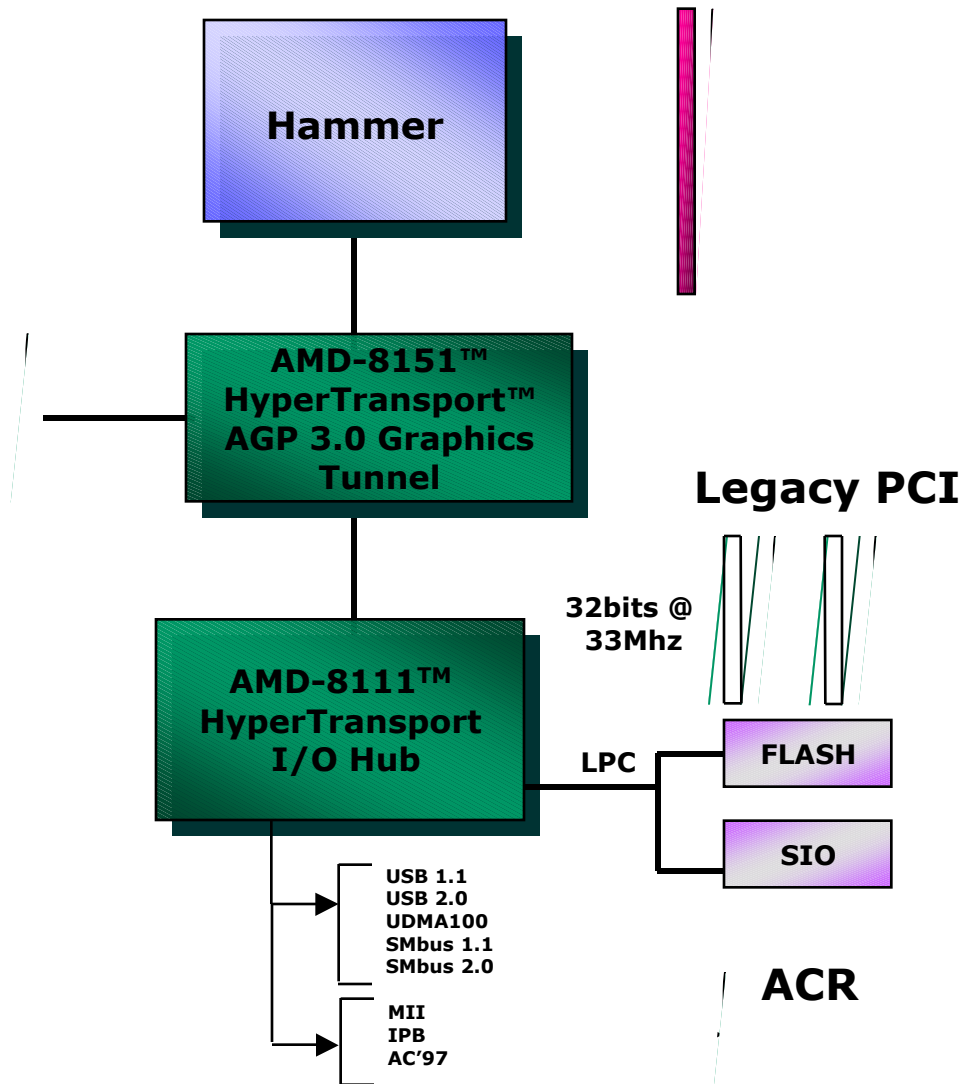
- **Integrated DDR memory controller**

- **Next generation core**

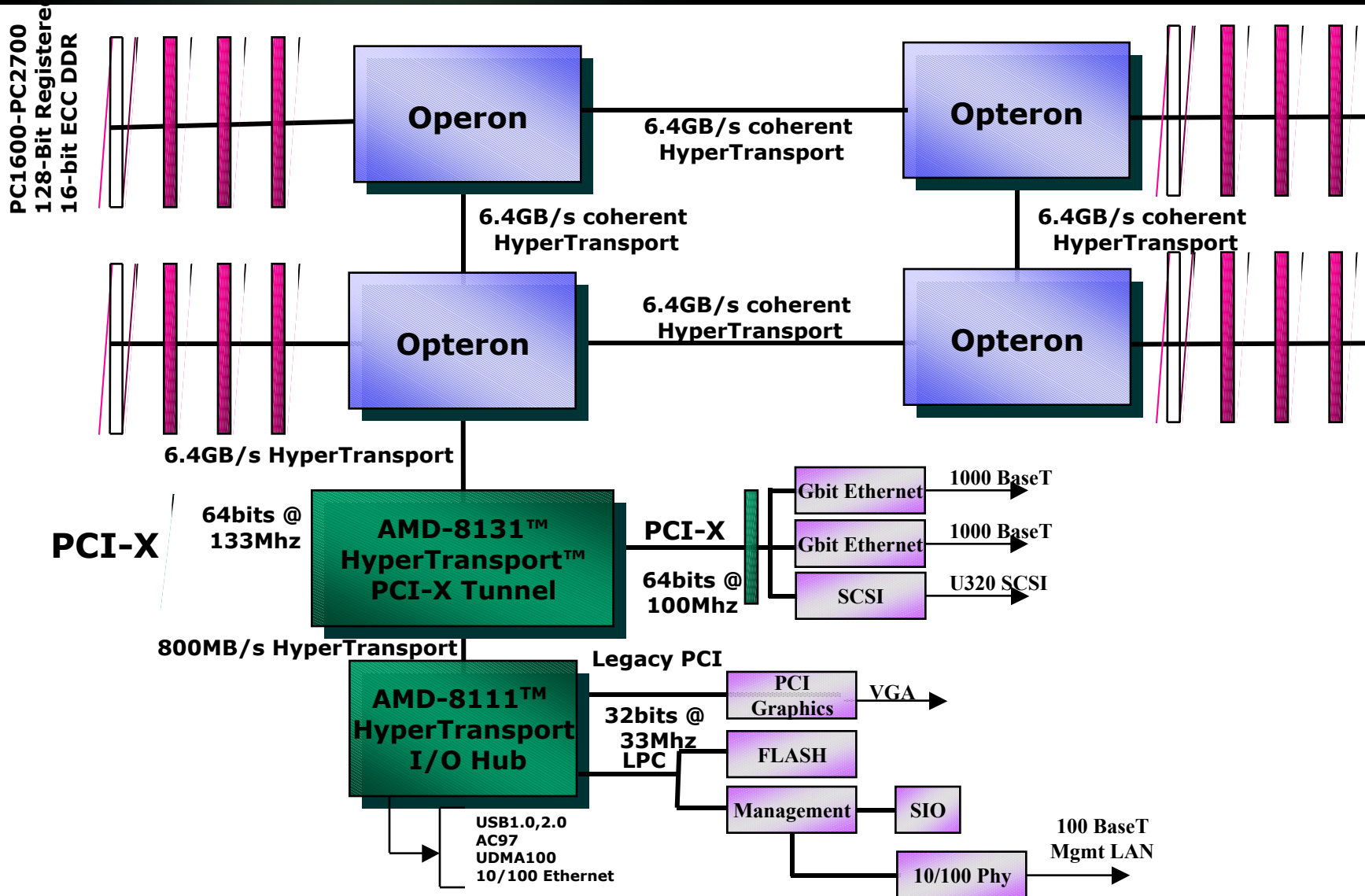
- **HyperTransport™ technology**



Performance Desktop Implementation



4-Way Server Implementation



AMD 