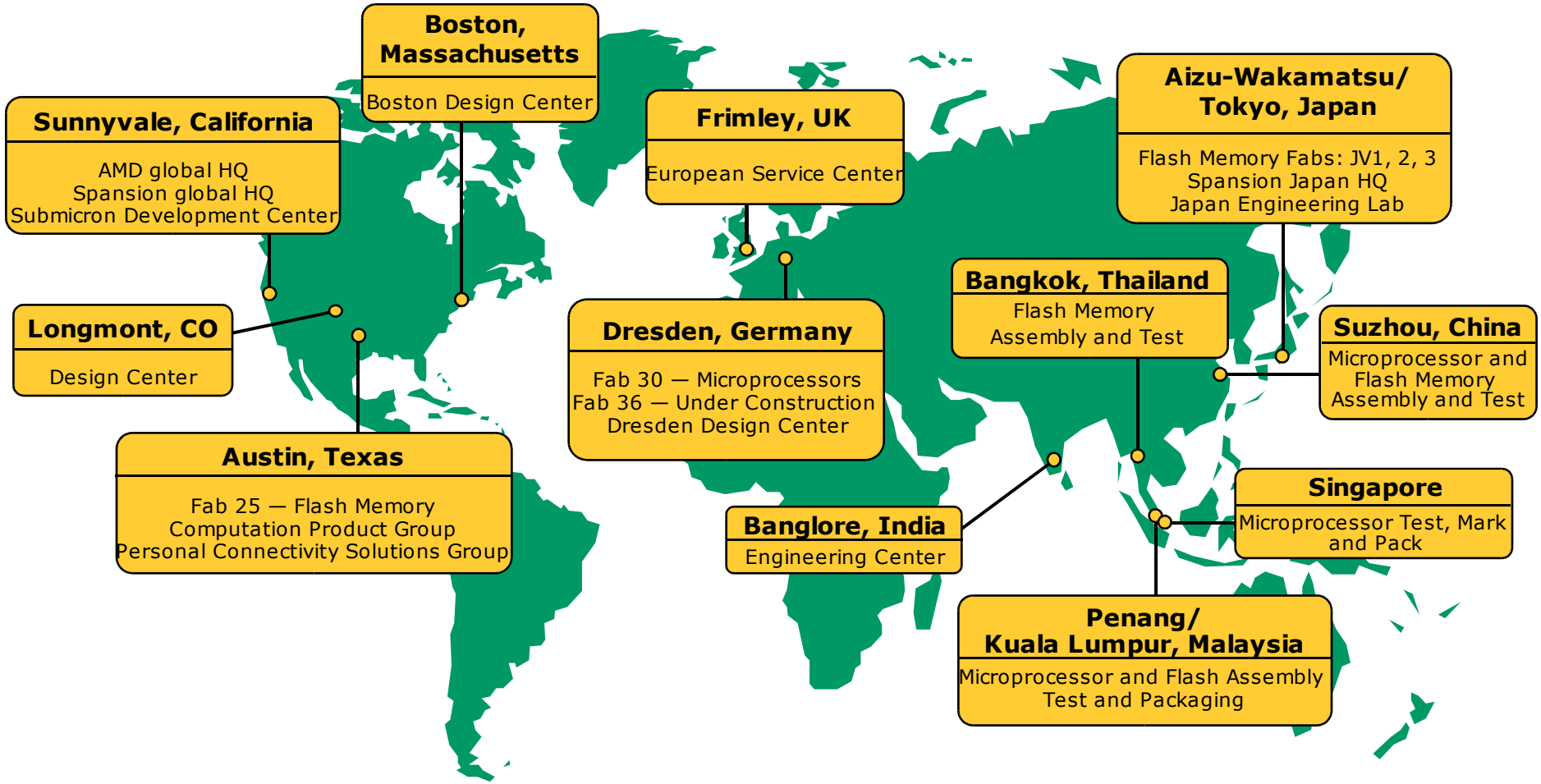
best OpenSystems

20.April 2005

AMD – processors made in Germany

- 1969 gegründet
- President, Chairman of the Board and CEO: Hector Ruiz
- Hauptsitz in Sunnyvale, CA (Silicon Valley)
- Umsatz 2004: US$ 5,1 Milliarden
- Marktkapitalisierung: US$ 6,02 Milliarden
- ca. 70 % des Umsatzes außerhalb der USA
- rund 14.500 Beschäftige weltweit
- Produkte: Prozessoren, Personal Connectivity Solutions (PCS), Flash-Speicher (IPO of Spansion)

AMD Standorte weltweit



AMDs Referenz-Fab in Dresden

- **AMD Fab 30 — Fab of the Year 2001***

- **Technische Informationen**

- > USD 2,4 Mrd. investiert (seit 1996)
- AMDs einzige Mikroprozessorfertigung
- weltweit
- > 14,000 m^2 Reinraumfläche
- ~20,000 Waferstarts / Monat
- 130 nm Technologie (SOI und Kupfer)
- Übergang in 90 nm Fertigung

- **Personalstruktur**

- > 57.000 Bewerbungen (seit 1996)
- > 2000 Mitarbeiter
- > 92% aus den neuen Bundesländern
- Durchschnittsalter: 35 Jahre
- > 40% mit Hochschulabschluß
- ~ 30% aus der Arbeitslosigkeit eingestellt

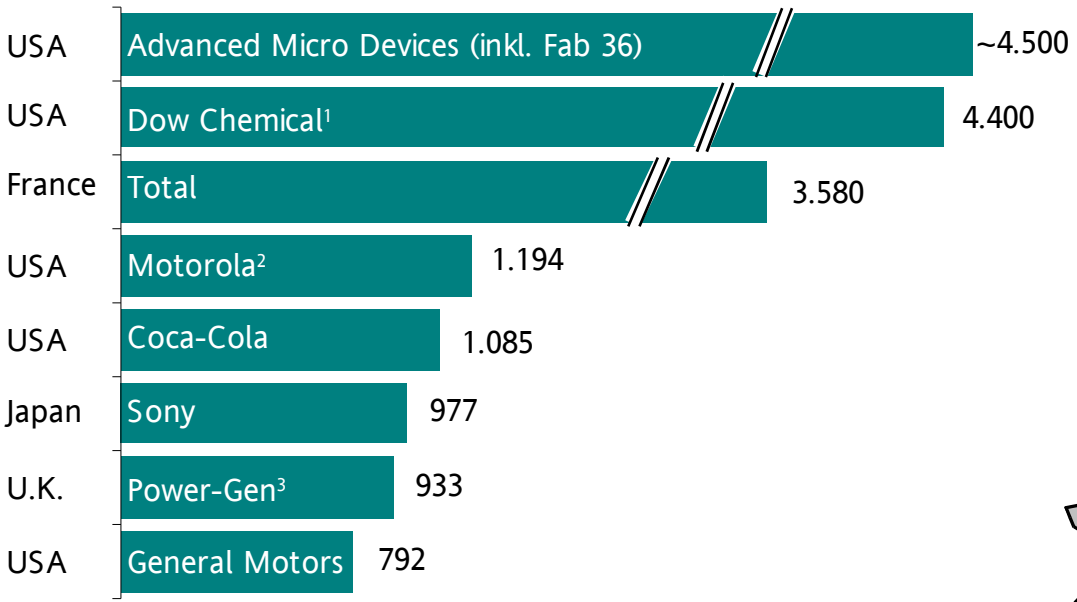
* Semiconductor International, May 2001

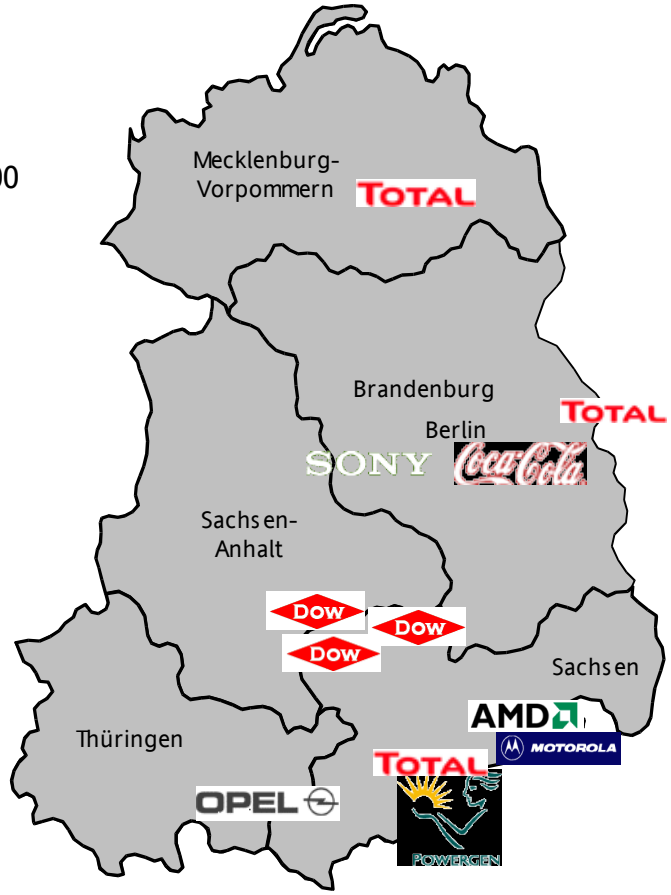
AMD Fab 36 - Visualisierung

AMD Fab 36 – Stand: 31. Juli 2004

AMD – größter Investor in Ostdeutschland

Internationale Investoren in den neuen Bundesländern € Mio.





[1] Spiegel (06.06.2003): „US Chemiekonzern Dow plant Rekordinvestition (zusätzlich 2 Mrd. €)“

[2] Joint venture mit Infineon Technologies (Germany)

[3] Joint venture mit Morrison-Knudsen (USA) und NRG (USA)

Source: Bundesministerium für Wirtschaft und Arbeit, Deutsche Bundesbank

AMD64 Technology Leadership

- AMD ranks in the **top 20** companies for patents awarded
- Sold by **four out of the top five** computer manufacturers worldwide*
- AMD64 supported by over **250** SW developers WW representing more than **785** SW packages
- Implemented by **global enterprises and Fortune 500** companies, including two of the top eight U.S. banks, and five of the top 10 international auto manufacturers.
- Selected for **30** of the world's highest-performing supercomputers, sevenfold increase in six months, as ranked by Top500.org in June 2004
- **More than tripled** AMD Opteron™ processor-based system shipments from Q303-Q104**

*Gartner-Dataquest 1Q '04 PC Market Results
**Gartner-Dataquest QSTATS Worldwide 1Q '04

AMD Server Penetration Strategy

Growing and Growing, and Growing . . .

Technical & Database Computing

HPC

Government/Academia
- Research Centers
- National labs
- Universities

Commercial Eng'g/Research
- Oil & Gas
- Pharmaceuticals
- Automotive
- Aerospace

Commercial & Enterprise IT Infrastructure

Commercial Business
- Financial Services
- Retail/Wholesale
- Healthcare

Enterprise
- Web & Application Serving
- CRM/ERP
- Collaboration & Messaging
- Virtualization

Die AMD64™ Architektur

Die Brücke zu 64-Bit!

AMD64 repräsentiert ein neues Segment der Computer-Architektur – Kundenorientierte Innovation !!

- Ausgewogene Architektur

  Kundenorientierter Aufbau ermöglicht einfache und effektive Skalierbarkeit

- Hohe Performance

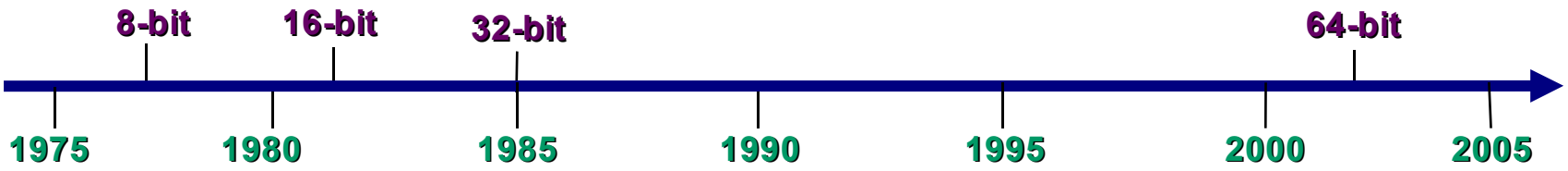
  Führend in der Performance ir 32-bit UND 64-bit Umgebunge

- Flexibilität

  Die Geschwindigkeit des Umstiegs auf 64-bit wird vom Kunden bestimmt.

AMD64 with Direct Connect Architecture

The 64-bit extensions of AMD64 are a natural evolution for x86



AMD64 with *Direct Connect Architecture* eliminates the real challenges and bottlenecks of system architecture

- Memory is connected directly to the CPU
  - Optimizing memory performance
- I/O is directly connected to the CPU
  - Balance throughput and enables expandable I/O
- CPUs are connected directly to CPUs
  - More Linear Symmetrical Multiprocessing
- CPUs are connected to CPUs on same die
  - Even greater reduced latencies between processors

Increasing memory address space without addressing the bottlenecks of a front-side bus adds little value!

AMD Opteron™ Processor

64-bit Processor Core

- Support for full speed 32-bit x86 instructions with 64-bit extensions
- 64-bit addressing handles larger databases, thousands of web requests at one time, more complex calculations, and larger graphic models

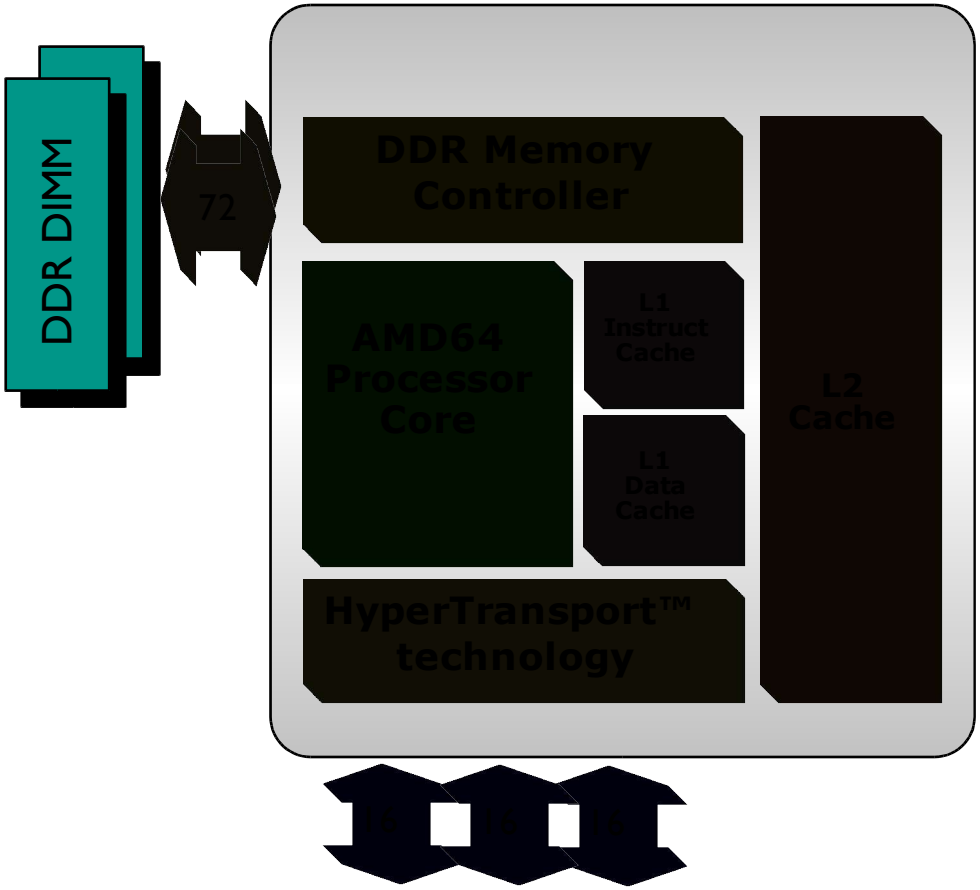
Integrated Memory Controller

- Minimizes memory latency
- Memory bandwidth is dedicated to each CPU
- I/O data is on separate bus
- Adding CPU's adds memory bandwidth

HyperTransport™ I/O capabilities

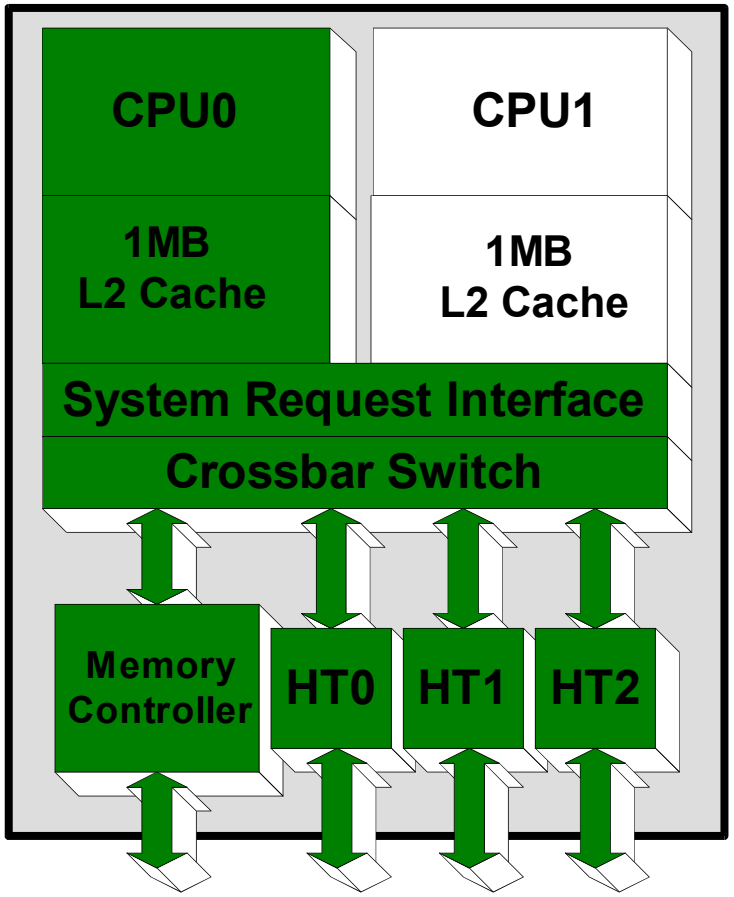
- Higher bandwidth for I/O intensive applications like media streaming or web serving
- Point-to-point high-speed communication

AMD Opteron™ Processor Architecture



AMD Opteron™ Processor Dual-Core

- The AMD Opteron™ processor was designed from the start to add a second core
- The CPU cores leverage the same SRI, HyperTransport™ technology and memory controller
- 940-pin socket compatibility with 90nm single core processors
- Rev E BIOS update to enable Dual-Core in existing systems



AMD Opteron™ Processor und Sun Microsystems

Sun Microsystems

- Sun Fire V20z: 2P/1U server shipping today
- Sun Fire V40z: 4P/3U server shipping today
- Sun Java W1100z, W2100z: 1,2P Workstation shipping today
- Acquired Kealia to augment horizontal scaling of server platforms
- For more information, please visit www.amd.com/sun

SUN AMD Opteron™ Processor Performance Wins

Sun Fire V40z

- #1 4P SPECweb®99_SSL
- #1 x86 4P SAP SD
- #1 4P Fluent

Source: http://www.sun.com/servers/entry/v40z/benchmarks.html

Sun Fire V20z

- #1 2P SPECweb®99_SSL
- #1 2P Linux SAP
- #1 Dual Node SPECjAppServer®2002

Source: http://www.sun.com/servers/entry/v20z/benchmarks.html

Sun Java Workstation W1100z and W2100z

- #1 1P and 2P OCUS (Pro/ENGINEER)
- #1 1P and 2P Blast (Bioinformatics)
- #1 x86 SPECfp®-peak2000
- #1 x86 2P SPECfp_rate2000

Source: http://www.sun.com/desktop/workstation/w2100z/benchmarks.html
http://www.sun.com/desktop/workstation/w1100z/benchmarks.html

Oliver Wunderlich

Business Development Manager

+49 89 45053 217

+49 172 8123 185

oliver.wunderlich@amd.com