Fujitsu’s Server Strategy

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Fujitsu Limited
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2. Our Server Business Strategy

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Summary
1. Market Trends and Current State of Server Business
Market Trends

- Avg. Market Growth Rate
  - Worldwide: + 4%, Japan: - 3%
- Avg. Worldwide Growth Rate for IA Servers
  - + 10% (IPF*: about + 100%)
- Worldwide Growth Rate for UNIX Servers
  - - 1%

Worldwide Server Market by OS (units)

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5.28 M units</td>
<td>7.75 M units</td>
</tr>
<tr>
<td>UNIX</td>
<td>.66 M (13%)</td>
<td>.82 M (11%)</td>
</tr>
<tr>
<td>Linux</td>
<td>.83 M (16%)</td>
<td>1.84 M (24%)</td>
</tr>
<tr>
<td>Windows</td>
<td>3.35 M (63%)</td>
<td>4.78 M (62%)</td>
</tr>
</tbody>
</table>

Average Growth Rate for Linux: 31%

Worldwide Server Market by CPU Type (share by value)

- Source: IDC Worldwide Server Quarterly Forecast, Q1 2004

*IDC defines the following categories:
  - CISC: MF, RISC: UNIX, EPIC: IPF (Itanium Processor Family), x86: IA
Fujitsu’s Share of the Server Market

  - 22% of Japan Market (2003) – No. 1

*Source: IDC Worldwide Server Quarterly Tracker, Q1 2004
*Source: IDC Japan’s Server Quarterly Model Analysis, Q1 2004
Server-Related Products Business

(Consolidated Basis)

<table>
<thead>
<tr>
<th>FY 2002</th>
<th>FY 2003</th>
<th>FY 2004 (forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¥ 382.8</td>
<td>¥ 365.6</td>
<td>¥ 395.0 (+8%)</td>
</tr>
</tbody>
</table>

*Server-Related Products Business: Includes servers plus storage systems and other products*
Worldwide Server Development & Sales

- Development Structure
  - Mainframes
  - UNIX Servers
  - Mission-Critical IA Servers
  - IA Servers
  - GS
  - PRIMEPOWER
  - under development
  - PRIMERGY
  - Fujitsu
  - Fujitsu
  - Fujitsu
  - Fujitsu
  - Fujitsu Siemens Computers

- Sales Structure
  - Japan/Asia-Pacific
  - EMEA
  - Fujitsu
  - Fujitsu Siemens Computers

Europe/Middle East/Africa  Japan/Asia-Pacific  North America
Server Trends: Open Systems & Globalization

- FY 2003: Open Systems’ Share of Total Server Sales – 62%
- Percentage of Overseas UNIX Server Sales – 54%

Composition of Sales (by server type)

- Mainframes, Others: 64%, 62%, 75%
- UNIX Servers: 54%, 42%
- IA Servers: 39%, 54%

UNIX Server Sales Ratio (units)

- Japan: 61%, 46%, 58%
- Overseas: 39%, 54%, 58%

Overseas Growth Rate + 91% (FY 2002-3)
2. Our Server Business Strategy
Information Systems Going Forward
From Centralized to Distributed Computing to “Ubiquitous Networking Era” Data Centers

Centralized (1980s)
- Central Host
- Centralization
- Performance
- Operating cost

Distributed (1990s)
- Client/Server
- Low-cost servers
- Simple operation

Consolidation/Data Centers (2000s)
- WEB Services, Utility Computing
- Building systems optimized for business processes and data
- Efficient use and optimal allocation of resources
- Simple operation of heterogeneous environments
- Scale-out, scale-up
- Virtualization, autonomic, integration technologies
Our Strategy

- Continue leadership in mission-critical systems
  - *Commitment to developing core technology ourselves*
    - High reliability, high quality, high performance, leading-edge technology

- Focus on and aggressively promote ‘open’ servers
  - Solaris, Linux, Windows

- Expand server business on a global basis
  - Tripartite business structure: Japan, US, Europe

Mission

- Provide servers for socioeconomic infrastructure systems
- Rapidly respond to customers’ diverse and changing needs
- Assure continuity of customers' assets
Server Product Strategy

**Mission-Critical Systems**
- **GS**
  - Assure continuity of customers’ assets
  - Launch new model in 2006

**PRIMEPOWER**
- Ensure reliability with Fujitsu-developed hardware
- Leverage rich applications portfolio for Solaris
  - Unify product offerings with Sun in 2006

**IA Servers**
- Fully leverage openness of Linux/Windows
- Differentiate through high reliability and quality
  - Introduce mission-critical IA server in 2005
Server Development Strategy
Deliver Mission-Critical Performance and Openness

- Utilize common Fujitsu mission-critical technology in all server offerings
- Leverage joint development tie-ups with global players

Commitment to Mission-Critical Technology
- Scalability
- Continuous Operation
- Autonomic Control

GS
- Developed by Fujitsu
- Greater Efficiency Through Cooperation with Partners in High Volume Areas

PRIMEPOWER
- Processor, server developed by Fujitsu
- Unified products w/ Sun Microsystems

Mission-Critical IA Server
- Chipset, Server Developed by Fujitsu
- PRIMERGY Joint Development with Fujitsu Siemens Computer

Strategic Development Alliances
- Sun Microsystems
- Intel
- Microsoft
- redhat

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**Shared Development**

GS ↔ PRIMEPOWER ↔ Mission-Critical IA Servers

<table>
<thead>
<tr>
<th>Shared Development Ratio*</th>
<th>Structural Elements</th>
<th>Shared Development Ratio*</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>Processor</td>
<td>---</td>
</tr>
<tr>
<td>75%</td>
<td>Chipset (ASIC)</td>
<td>20%</td>
</tr>
<tr>
<td>30%</td>
<td>Firmware</td>
<td>30%</td>
</tr>
<tr>
<td>80%</td>
<td>Components</td>
<td>60%</td>
</tr>
</tbody>
</table>

*Ratio of common items in new model development

- **40% Reduction in Overall Costs**

*Differentiated portion*
Fujitsu is Japan’s only vendor able to leverage its mainframe technology heritage to develop its own processors and servers.
Servers to Meet Varied Market Requirements

Developed by Fujitsu / Strategic Alliances

**GS**

**PRIMEPOWER**

**Mission-Critical IA Server**

**PRIMERGY**

**Japan Market**

- **Mainframe Market**
  - Fujitsu Customers: About 4,000 companies

**Overseas Markets**

- **Solaris Market**
  - 63% of UNIX Market
    - (¥ 700 B)
    - Fujitsu Customers: About 1,000 companies

- **Transmigration Market**
  - Fujitsu Customers: About 2,300 companies

- **IPF Market**
  - New Growth Market
    - (¥ 500 B in 2006)

- **SME Market**
  - Fujitsu Customers: About 40,000 companies

Markets in which we can leverage our mission-critical IA server

Servers to Meet Varied Market Requirements
3. Server Business Initiatives

3.1 Continuing Leadership in Mission-Critical Systems
   Commitment to developing core technology ourselves

3.2 Striving for Further Growth
3.1 Continuing Leadership in Mission Critical Systems

Commitment to Developing Core Technology Ourselves
Core Competence in Server Development
Fujitsu’s Heritage

Fully Capitalizing on Our Core Strengths

Server Development Technology
- Mainframe-class reliability technology
- Supercomputer-based high-speed technology

Leading-Edge Semiconductor Technology
- 90nm technology
- 10-layer copper wiring + Low-k(*)
- High integration & low power consumption

World-Class Servers
Using Mainframe Technology to Deliver High Reliability

(*) Low-Dialectic Interlayer Insulation, Reduces size circuitry requirements
## High-Reliability Design Architecture

<table>
<thead>
<tr>
<th>Feature</th>
<th>PRIMEPOWER Processor</th>
<th>GS Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cache Memory Data Protection</td>
<td>Tag</td>
<td>ECC</td>
</tr>
<tr>
<td></td>
<td>Data</td>
<td>ECC</td>
</tr>
<tr>
<td>Cache Memory Dynamic Degradation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer/Register Error Detection</td>
<td></td>
<td>Parity</td>
</tr>
<tr>
<td>Hardware Instruction Retry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Hardware-based error detection and self-healing
- Hardware-based error detection
- No impact even if error occurs
## Commitment to Continuous Operation

### PRIMEPOWER2500 vs. Company A (example)

<table>
<thead>
<tr>
<th>Component</th>
<th>PRIMEPOWER2500</th>
<th>Company A (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Memory</td>
<td>Not Available</td>
<td>Planned Stoppage</td>
</tr>
<tr>
<td>Back Plane Crossbar</td>
<td>Planned Stoppage</td>
<td>Not Available</td>
</tr>
<tr>
<td>System Board</td>
<td>Planned Stoppage</td>
<td>System Stopped</td>
</tr>
<tr>
<td>Service Processor</td>
<td>Planned Stoppage</td>
<td>Not Available</td>
</tr>
<tr>
<td>Power Source / Fan</td>
<td>Planned Stoppage</td>
<td>Planned Stoppage</td>
</tr>
<tr>
<td>I/O Card</td>
<td>Planned Stoppage</td>
<td>Not Available</td>
</tr>
<tr>
<td>Disk</td>
<td>Planned Stoppage</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

### PRIMEPOWER’s Continuous Operations Technology

- **Self-diagnosis for error prediction monitoring function**
- **Selective power shut-down function**
- **Automatic isolation of failure location**
PRIMEPOWER: World-leading Performance

UNIX Servers with Best-in-Class Performance on a Variety of Industry Benchmarks

<table>
<thead>
<tr>
<th>SPECjbb</th>
<th>SAP</th>
<th>TPC-H</th>
<th>SPEC OMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java Applications</td>
<td>SAP ERP</td>
<td>Decision Support</td>
<td>Parallel Processing</td>
</tr>
</tbody>
</table>

PRIMEPOWER: World-leading Performance

**SPARC 64V**
High-Performance Technology

- Out-of Order
- 4-Instruction Parallel Decode
- 6-Operation Parallel Execution
- 3MB On-Chip L2 Cache

**PRIMEPOWER**
High-Performance Technology

- World-Leading Scalability
  (Expandable to 128 CPUs x 128 Nodes: 16,384 CPUs)
- Fiber-optic Interconnect Technology
  (4GB/s)
- System Bus Performance (133GB/s)
High Performance

PRIMEPOWER: World-leading Performance
SPECjbb Applications

*Source: SPEC web site (http://www.spec.org/) 2004.6.22
Our Processor Development Roadmap

PRIMEPOWER SPARC Processor Roadmap

- CPU Performance Comparison
  - SPARC64 GP 810MHz 150nm
  - SPARC64 V 1.35GHz 130nm
  - New Product 1.89GHz 90nm
  - Mainframe-class RAS technology
  - World’s First

- SPARC64 VI 2.4GHz 90nm
  - Dual Core Processor

- SPARC64 VI + 2.1GHz 65nm

- Roadmap is subject to change without notice.

*2002 2003 2004 2005 2006 2007*

- World’s First
Pursuing the World’s Top Quality
Employing Japan’s Unique Approach to High Quality

**Design Quality**
- Thorough logic verification through document-driven, team-based (including production) approach
- LSI design using simulation technology to ensure high margins
- Test programs by third parties

**Component Quality**
- Exhaustive component evaluation using group of specialists including scientists
- Evaluation of components/materials, design/functionality confirmation
- Structural analysis of components using scanning electron microscope

**Product Quality**
- Overall system testing, including middleware
- Independent quality assurance organization makes final decisions on product’s ready-to-ship status
- Automated clip failure test (BBC)
- Virtual IO failure test (CTF)

**Mass Production Quality**
- Structural designers help ensure quick and stable mass production quality
- Prototype automation to prevent human-caused inconsistencies
- Vibration, heat tests to eliminate damage during shipment

Server quality status:
Top-level in industry: 70% (1QFY03) → 95% (4QFY03)
Proactive Environmental Protection Efforts

Fujitsu has ranked #1 for five successive years in the computer industry segment of the Dow Jones Sustainability Index

- **Products That Are Energy Efficient and Incorporate the “3R’s”: Reduce, Reuse, Recycle**
  - All 2005 server models to meet energy-saving standards
  - Reuse and recycling of plastic casing and packing materials

- **Efforts to Eliminate Harmful Materials**
  - Elimination of six substances* targeted for end of FY 2005
    *mercury, lead, chromium VI, cadmium, PBB, PBDE
    
    PBB: polybrominated biphenyl
    PBDE: Polybrominated diphenyl ether

Super-Green Products
PRIMERGY Blade Server
Energy saving (1/3)
Space saving (1/7)
3.2 Striving for Further Growth
Advancing Autonomic, Virtualization & Integration Technologies – Toward Utility Computing

Providing Virtual/Autonomic Functionality in Addition to Superior Reliability, Quality and Performance

- Autonomic Operation in Accordance with Customer’s Rules
- Reduced Operating Expenses
- Efficient Utilization of Hardware Resources
- Dynamic Provisioning of Servers & Storage in Accordance with Changes in Operational Load
- Provisioning
- Benchmark with TRIOLE Model:
  Systemwalker / Resource Coordinator
  Identification of cause of delay: from 1 hr 15 mins. to 3 mins.

Virtualization, Visualization
Quickly Determine Problem Areas in Complex Systems

Reduced Operating Burden

TRIOLE
PRIMEPOWER
PRIMERGY
ETERNUS

Resource Coordinator

Dynamic Provisioning of Servers & Storage in Accordance with Changes in Operational Load

2003  2004  2005

Service Level Improvement
Strategic Collaboration with Global Partners

Global Business Expansion Through Strategic Alliances with Major Global Industry Players

Open systems development through alliances with strong players

Commitment to developing core technology ourselves

Strategic Development Partnerships

UNIX Servers / Solaris

Mission-Critical IA Server

Linux

Windows

Strategic Development Partnerships

-oracle-

FlexFrame (SAP solution)
Global Business Expansion Scenario

~ FY 2003

Strengthen Business Infrastructure and Organization in Three Main Markets

Win new global customers with PRIMEPOWER

PRIMEPOWER Customers:
- Japan/Asia-Pacific: about 2,300
- Europe: about 800 (FSC)
- N. America: about 200 (FCS)

FY 2004

Strengthen Sales Capability through Global Expansion of TRIOLE

Europe:
- Promote platform integration model in close cooperation with FSC & FS

North America:
- Promote expanded sales to Fortune 500 companies, Particularly by FCS & FC

China/Asia-Pacific:
- Solution business tie-ups centering on FCH & FAPL

FY 2005 ~

Accelerate Business Development by Strategic Alliances with Global Partners

- Expand share of UNIX market through unified product offering (APL) with Sun Microsystems
- Win business in new IPF market with mission-critical IA servers (Linux, Windows)

FSC: Fujitsu Siemens Computers
FCS: Fujitsu Computer Systems
FS: Fujitsu Services
FCH: Fujitsu China Holdings
FC: Fujitsu Consulting
FAPL: Fujitsu Asia Pte. Ltd.
Strategic Roadmap

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td>GS</td>
<td></td>
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<td></td>
<td>Support Throughout Customer’s IT System Lifecycle</td>
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<tr>
<td></td>
<td>GS21</td>
<td></td>
<td></td>
<td></td>
<td>Next GS21</td>
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<tr>
<td>PRIMEPOWER</td>
<td></td>
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<tr>
<td></td>
<td>Solidify Hold on Solaris Market</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PRIMEPOWER 1.35GHz</td>
<td>New PRIMEPOWER 1.89GHz</td>
<td>Fujitsu-Sun Product Cross-Supply</td>
<td>Fujitsu, SUN Integrate Products (APL)</td>
<td></td>
</tr>
<tr>
<td>IA Servers</td>
<td></td>
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<tr>
<td></td>
<td>Seize Opportunities in High-Growth Markets</td>
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<td></td>
<td>Intel Red Hat SuSE Microsoft</td>
<td>Mission-Critical IA Server</td>
<td>Next-Generation Processor</td>
<td>Mission-Critical IA Servers</td>
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<td></td>
<td>BLade Servers</td>
<td>Fault Tolerant Servers</td>
<td>PRIMERGY</td>
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<td>Storage Systems</td>
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<td></td>
<td>Storage systems that guarantee protection of customer’s data</td>
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<tr>
<td></td>
<td>ETERNUS 3000/6000</td>
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<td>Next ETERNUS</td>
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</tbody>
</table>
Summary: Role of Servers in Business Development

- Customer-centric perspective
- Commitment to developing core technology ourselves
- Strive for further business growth

Proactive response to open systems trends
THE POSSIBILITIES ARE INFINITE
Cautionary Statement

This presentation may contain forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. Words such as "anticipates," "believes," "expects," "estimates," "intends," "plans," "projects," and similar expressions which indicate future events and trends identify forward-looking statements.

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- general economic and market conditions in the major geographic markets for Fujitsu's services and products, which are the United States, EU, Japan and elsewhere in Asia, particularly as such conditions may effect customer spending;
- rapid technological change, fluctuations in customer demand and intensifying price competition in the IT, telecommunications, and microelectronics markets in which Fujitsu competes;
- Fujitsu's ability to dispose of non-core businesses and related assets through strategic alliances and sales on commercially reasonable terms, and the effect of realization of losses which may result from such transactions;
- uncertainty as to Fujitsu's access to, or protection for, certain intellectual property rights;
- uncertainty as to the performance of Fujitsu's strategic business partners;
- declines in the market prices of Japanese and foreign equity securities held by Fujitsu which could cause Fujitsu to recognize significant losses in the value of its holdings and require Fujitsu to make significant additional contributions to its pension funds in order to make up shortfalls in minimum reserve requirements resulting from such declines;
- poor operating results, inability to access financing on commercially reasonable terms, insolvency or bankruptcy of Fujitsu's customers, any of which factors could adversely affect or preclude these customers' ability to timely pay accounts receivables owed to Fujitsu; and
- fluctuations in rates of exchange for the yen and other currencies in which Fujitsu makes significant sales or in which Fujitsu's assets and liabilities are denominated, particularly between the yen and the British pound and U.S. dollar, respectively.