

## Specific Topics

Expected to be Documented  
in the SADG Include:

### System Hardware Guidelines

- Processor Complex and System Bus
- Interrupts
- Memory Capacity
- PCI I/O Bus
- Form Factors
- Power Requirements
- Slots

### System Management Guidelines

- Network Interfaces for System  
Management
- Server Management Capabilities

### Diagnostics

- Context for Diagnostics
- Guidelines for Diagnostics

### Boot and Configuration Guidelines

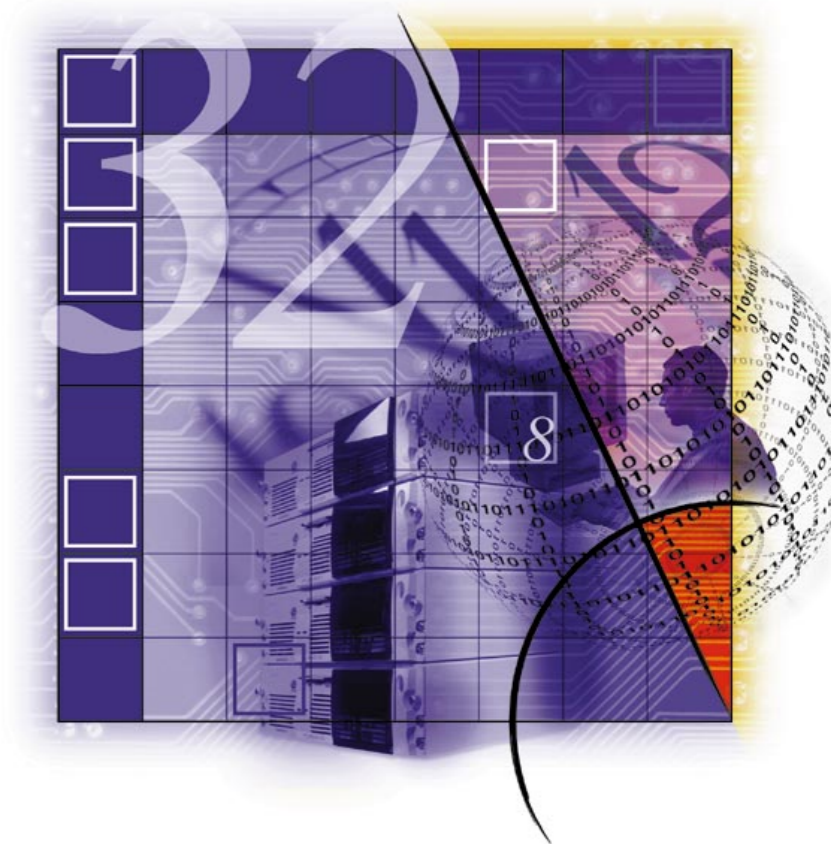
- Context for Boot and Configuration
- Ease of Configuration Guidelines

### BIOS Guidelines

- Context for BIOS
- BIOS and Firmware Formats

### Network and Communication Guidelines

- Context for Network and  
Communication
- Storage Subsystem Capabilities
- Network and Communication I/O



## Server Appliance Design Guide

*The emergence of the Internet is forcing changes in the enterprise server market segment. Today, all businesses need to be on the Internet. New server platforms are being conceived to meet the diverse requirements of Internet-based business and computer servers. Consequently, a new class of servers is emerging, known as "server appliances."*

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# A Common Set of Server Appliance Interfaces

Server appliances are physically and functionally smaller than conventional general-purpose servers. They're designed to be scalable and are optimized for a single task such as Internet service or IP telephony. Typically, these platforms feature space-efficient, "headless" operations (that is, no attached monitor) and are delivered with fixed, factory-installed applications. Their key benefit is in offering IT organizations, ISPs and telecommunication network providers the ability to quickly implement specific server functions with the simplicity of an appliance.

Server appliances make up a potentially fast-growing market segment for OEMs, IHVs and ISVs. At present, server customers perceive the appliance segment as fragmented and lacking the standardization needed to ensure trouble-free, interoperable solutions. Even though server appliance solutions are urgently needed, customers are reserving judgment—and withholding purchase orders—until the market segment stabilizes.

## Attaining Market Stability

An industry-standard set of platform server design specifications is needed to establish the desired stability. ISVs need standardized interfaces if they are to develop innovative software solutions in support of a server appliance market segment. Without such an effort, many disparate and proprietary vertical products will potentially vie for the server appliance market segment. This will cause server appliance market segment fragmentation, sub-optimal time-to-market and poor software and firmware vendor support. Ultimately, without a set of server appliance specifications, the server appliance market segment development will be stalled and reasonable manufacturing economies of scale will never be achieved. A diversity of incompatible solutions will present great obstacles for a server appliance software application market segment to develop.

Intel has joined with a group of industry leaders in the networking and telecommunications industries (Acer\*, Bull SA\*, Cobalt\* Networks\*, Dell\*, Dialogic\*, Digex\*, Hewlett-Packard\*, Lucent\*, Nortel\*, Novell\*, Oracle\*, Red Hat\*, SCO\*, Siemens-Nixdorf\*, VA Research\* and Whistle Communications\*) to form the Server Appliance Industry Group. This group will cooperatively develop a server specification to provide insights to platform stabilization. This specification is expected to be published as the Server Appliance Developer's Guide (SADG). This guide will provide a much-needed specification framework for the server appliance market segment.

## Purpose of the Server Appliance Design Guide

The SADG specification will define a set of hardware and low-level system interfaces for Intel-based network server appliances. This is the biggest step toward building a coherent market infrastructure that will enable vendors to develop effective and complimentary products. In addition, this effort and the specification will provide a focal point to generate customer interest and invigorate product innovation.

## Server Appliances Defined

Server appliances are designed to service the Internet computing needs of ISPs and Telco vendors. Key for these businesses are characteristics such as: smaller, headless, rack-mountable form factors for efficient storage of many servers in limited spaces; fast network connections to support increasing Internet traffic; and remote management capability. Specifically, these characteristics equate to features that include: rack-mountable, 1u to 3u servers with enhanced data rates, large memory and addressability, large disk capacity and fast I/O functionality. Server appliances are designed for more capacity-intensive operations such as caching, directory serving, firewalls and gateways, load balancing and so on.

Without consistent standards or specifications, new market segments, such as network server appliances, can take years to mature and stabilize. The underlying purpose of the SADG specification is to help enable the server appliance market segment to reach its full potential in much less time. The need is there, the customer demand is there; all that is needed is a reassuring "umbrella" of open platform specifications.

# What the SADG Specification will do For You

By providing a stable context for server appliance hardware and low-level system interface developments, the SADG will effectively isolate the application layers from the hardware platform. The specification will be OS-independent. The SADG will benefit from a broad cross-section of server market segment participants. By firming up a uniform set of system building blocks now, the SADG will help the segment grow much faster than possible when fragmentation is allowed to persist. The SADG specification will be the foundation of a new, high-volume market for OEMs, IHVs, ISVs and OSVs.

## Benefits for IT

For IT managers, the SADG specification is expected to underpin a new class of server systems. As a result it should be:

- Faster to modify existing computing infrastructure to meet Internet business needs
- Easier to match to exact server needs with a specific solutions—firewall, e-mail, Web support, and so on
- More cost-effective for remote system management and computing support in branch offices without local IT staff or skilled technicians

## Benefits for OEMs

For OEMs, the server appliance market segment is a valuable opportunity to expand existing product portfolios and reach new classes of customers. The SADG specification is expected to:

- Create volume market segments and encourage faster growth on the application side
- Foster a multiple-OS environment, further building the market segment for server appliance hardware
- Allow technology companies to spend development energy on differentiating product features, rather than addressing cross-platform issues
- Provide visible industry support for hardware and software interfaces, reassuring users and increasing IT industry demand for server appliances

## Benefits for OSVs

For OSVs, the SADG specification will foster dramatic server appliance market segment growth. This will provide benefits such as:

- Increased business opportunities, enlarging the total number of installed servers and server users
- Provide a platform for a whole new category of products: specialized, limited-function operating systems for self-contained server appliances

## Benefits for ISVs

For ISVs, the server appliance market segment is an important new vehicle for your products. The SADG specification is expected to:

- Develop volume market segments of common hardware building blocks, providing a larger, more uniform market segment to focus development efforts
- Increase the number of hardware vendors supplying systems that will require software products
- Foster a multiple-OS market with attendant economies of scale
- Accelerate demand from IT and ISPs by reducing development costs through adoption of more cost-effective server appliances
- Allow high-tech firms to spend development energy on differentiating features visible to users, rather than addressing cross-platform issues

## Benefits for ISPs

For ISPs, the server appliance market segment is a reliable, cost-effective way to address the continued explosive growth of Internet customers and users. The SADG specification is expected to:

- Enable a broader product offering range for better solutions to your customer needs
- Drive a broad range of products and solutions designed for your users' business needs

## Conclusion

The Server Appliance Design Guide specification is a cooperative industry-wide effort to stabilize system building blocks for the emerging server appliance architecture. Consequently, the SADG specification will enable faster market segment growth for vendors and a broader range of product solutions as well as choices for server users

