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## Continuity in Computing

### Avanti™ SPD V1.0 – 03-JUN-2010 Digital Emulator Collection

#### Software Product Description



Avanti is a virtual AlphaServer 400 designed to be hosted on a **Windows x64** systems. This highly portable product offers the following key features:

- OpenVMS support
- Tru64 UNIX support
- Simple configuration
- Commercial licensing
- Commercial support

Avanti is designed to virtualize legacy Digital Equipment Corporation (DEC), Compaq, and HP Alpha hardware. The product is *binary compatible* with real Alpha hardware, allowing the resident operating system and software to be ported to Avanti without modification or the need for source code. Avanti offers a simple way to upgrade existing Alpha systems to new, commodity hardware.

Avanti is designed for critical system use. It is capable of providing on par performance with DEC 3000, AlphaStation 200, AlphaStation 400, and AlphaServer 400 machines when hosted on appropriate hardware. It can server as a replacement for any Alpha system where performance is not a key criteria.

Avanti supports 32MB to 1.5GB of virtual memory, up to 45 storage devices, including a physical CD/DVD-ROMs, three 100Mb NICs, one virtual serial console, and one virtual or physical serial port.

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## HOST SERVER REQUIREMENTS

These are *minimum* recommended host system requirements. Faster hardware will provide better performance. Use quality hardware to ensure long term reliability.

- Windows 64-bit O/S: XP, Vista, 7, Server 2003, Server 2008
- Dual core processor
- Memory
  - 2GB: Windows XP, Server 2003
  - 4GB: Windows Vista, 7, Server 2008
- 2 NICs
- Sufficient disk space to support virtual disk image files.

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## AVANTI SOFTWARE PACKAGE

The Avanti software package can be ordered from Migration Specialties. The *Avanti User Guide* and *Release Notes* can be downloaded from the Avanti home page. The kit includes the Avanti emulator, configuration utility, WinPcap<sup>1</sup>-based NDIS network driver, and PuTTY<sup>1</sup> terminal emulator.

**Avanti Home Page:** <http://www.migrationspecialties.com/Avanti.html>

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## AVANTI VIRTUAL HARDWARE SUMMARY

CPU	1 EV4
Memory	32MB - 1.5GB
Disk Controllers	1 - 3*
Disks per Controller	7 (KZPAA) or 15 (KZPCA)
Maximum Disk Size	1 TB (limit determined by operating system)
NICs	1 - 3*
Serial Ports	2 (virtual console + one virtual/physical)
CD-ROM	45**
PCI slots	4*

\*Avanti allows up to four virtual PCI devices. Each PCI slot can contain either a NIC or a disk controller. As a system without at least one NIC and one disk controller is not very useful, a maximum of three NICs or three disk controllers is allowed. An Avanti system can be configured with 1 to 3 NICs and 1 to 3 disk controllers, with a combined maximum of 4 PCI devices.

\*\* In theory, each disk on each controller could be a virtual or physical CD/DVD-ROM drive. There is a maximum of 45 SCSI drives.

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<sup>1</sup> Avanti includes software developed by the Computer Systems Engineering Group at Lawrence Berkeley Laboratory and Simon Tatham. See the Avanti license agreement for additional details.

## **CPU**

Avanti provide one virtual EV4 CPU. Symmetric Multiprocessing (SMP) is not supported.

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## **MEMORY**

Avanti supports 32MB to 1.5GB of memory. The AlphaServer 400/166 supported a maximum of 384MB of memory.

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## **STORAGE**

### **Controllers**

Avanti supports up to three KZPAA and KZPCA SCSI controllers. Which controller is available for use is dependent upon the O/S version installed. For example, VMS 7.2 does not support the KZPCA SCSI controller.

#### **KZPAA SCSI Controller**

The virtual KZPAA supports up to 7 virtual disks or CD/DVD-ROMs.

#### **KZPCA SCSI Controller**

The virtual KZPCA supports up to 15 virtual disks or CD/DVD-ROMs.

### **Internal Storage**

Virtual disk drives are supported as image files under the host operating system. File location is limited only by the host system. Avanti limits virtual disk size to 1TB per disk. Disk size is further limited by the operating system running on Avanti. For example, Avanti running OpenVMS version 6.2 would be limited to virtual disk sizes of 9GB. Check the Software Product Description (SPD) for the O/S version you are using to determine actual limits.

### **Removable Media Devices**

Avanti supports physical CD and DVD-ROM device. CDs and DVDs can also be copied as ISO files and accessed as virtual media.

### **External Expansion**

Virtual disks can be created on external storage devices accessible to the host system.

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## **CONSOLE**

Avanti provides SRM console access via a virtual serial port (OPA0).

## COMMUNICATIONS

- Up to three virtual 10/100Mb DE500 NICs. External performance is driven by the host system and may exceed 100Mb.
- One virtual serial console (OPA0).
- One virtual or physical serial port (TTA0 or /dev/tty01). Telnet access supported by a user defined Telnet port. Physical access supported via a physical serial (COM) port on the host system.

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## PRINTERS

- Network printer support dependent upon O/S running on Avanti.
- Serial printer support via TTA0 or /dev/tty01 and host system serial port.

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## CONFIGURATION

Avanti is configured via a simple text based configuration file.

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## SOFTWARE

### Operating Systems

- OpenVMS V6.1-1H1 and higher.
- Digital OSF/1 V3.2C and higher.
- Tru64 UNIX V4.0 and higher.

Avanti implements the Alpha SRM firmware, limiting O/S support to those O/S's that can boot from SRM. Thus, Avanti does not support WindowsNT. Avanti implements a virtual serial console, but does not implement a graphics card, so O/S's requiring a graphical interface are not supported. Avanti has not been tested against O/S's such as Red Hat Linux, NetBSD, FreeBSD, and OpenBSD, which do utilize the Alpha SRM firmware.

### Terminal Emulator

- PuTTY: Free implementation of Telnet and SSH for Windows and UNIX platforms. A copy of PuTTY is provided with Avanti. The software is also available from this link:

<http://www.chiark.greenend.org.uk/~sgtatham/putty/>

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## TESTED O/S

Avanti has been tested under the following 64-bit operating systems:

Windows XP	Windows Server 2003	Windows Vista	Windows 7
Windows Server 2008			

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## VIRTUAL MACHINES

Avanti has also been hosted on Windows O/S running under VMware®, Sun VirtualBox, Apple Parallels, and Apple Boot Camp.

## **WARRANTY**

Avanti is provided with a 90-day factory warranty. Annual software support contracts are available for purchase.

## **UNSUPPORTED OPTIONS**

- Avanti has not implemented the EV4 CPU on-chip performance counters. Code profiling applications such as kprofile and uprofile will not work correctly on the emulator.

## **SUPPORT**

Avanti customers under warranty or holding a valid support contract may contact their Avanti supplier with questions and problem reports. Support contact information is provided with the Avanti kit.

## **UPDATES**

Migration Specialties may post updates to Avanti at any time. Notices of updates will be posted on the Migration Specialties web site, to the Avanti mailing list, to Avanti suppliers, and in various Alpha related publications.

## **COUNTRY OF ORIGIN**



Avanti was developed by an international team with members from the USA, Canada, The Netherlands, and the UK. Avanti is owned and controlled by Migration Specialties International, Inc., a US corporation.