

Charon-AXP/SMA, /SMA PLUS and /Station for Windows

Product version 2.3.3

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DESCRIPTION

Stromasys **Charon-AXP/SMA, /SMA PLUS, and /Station** (where SMA stands for Small and Medium Alpha) are members of the Charon-AXP cross-platform hardware virtualization product family.

They are designed to replace a wide range of small and medium sized Alpha systems with up to 1 (/Station), 2 (/SMA), or 4 (/SMA PLUS) emulated AXP CPUs. Please refer to the second page for the details. Charon-AXP emulates most of the original Alpha-specific hardware. It runs the original Alpha binary code, including the operating systems OpenVMS and Tru64 UNIX, the layered products, and applications, which all continue to work as before. A small number of changes to the original software (operating system, layered products, or applications) may be required. The Tru64 kernel may have to be rebuilt.

NETWORK

Charon-AXP virtualizes the Ethernet controllers included in the original AlphaServer hardware that is replaced (DE435, DE450 and DE500BA). Any protocol supported on these controllers (DECnet, TCP/IP, LAT) will work on this virtualized link.

STORAGE

Charon-AXP provides support for Alpha storage devices: disk, tape and generic SCSI via virtual KZPBA SCSI adapters. Charon-AXP allows connecting Alpha SCSI devices to logical disks or tapes that appear as container files in the host operating system, connections to Windows physical devices and direct SCSI addressing. In the latter case the nature of the connected device is not important; the Alpha operating system already included the drivers for these devices.

The storage support is based on SCSI; however, Charon-AXP includes a special OpenVMS driver that allows to present OpenVMS with other device types: IDE (DQ), FibreChannel (DG), DSSI (DI), RAIDarray (DR) and MSCP (DU), in addition to SCSI (DK/MK/GK devices).

The storage technology used by the host computer is hidden from the Alpha operating system. This allows storing emulated SCSI or IDE disk on a FibreChannel SAN.

HOST SYSTEM REQUIREMENTS

A physical system or virtual appliance with multi-core CPUs (Intel Xeon v4 E3, E5, and E7 CPUs with a clock frequency of 3GHz and above are recommended), dedicated Ethernet adapters, an optional USB port for the license key and enough disk space to keep the OpenVMS or Tru64 data. Charon-AXP requires a minimum of 2 GB host RAM in addition to the amount of emulated AXP RAM.

Charon-AXP virtualizes an Alpha system with one or more (up to 4) CPUs and requires one of the CPUs on the host system for every virtual Alpha CPU. Additional host CPU capacity is required for I/O handling and other virtualization support tasks. Charon-AXP licensing allows combining multiple licenses on one multi-core host system if the rule of reserving 1 additional host CPU core for every virtual Alpha CPU is observed.

Please refer to the second page for supported Windows versions.

PERFORMANCE

The Charon-AXP performance scales almost linearly with the host physical CPU (per core) performance. When run on a HP ProLiant with an Intel Xeon v4 E3 or E5 3.5 GHz CPU, Charon-AXP provides comparable performance to the Alpha hardware it replaces. Please refer to the Performance Measurements provided with the product kit for details.

SYSTEM MAINTENANCE

Once installed and configured, the Charon system behaves like the original Alpha system, and can be treated as an Alpha. Guest OS and applications operating procedures remain the same. The host operating system does not require a network connection and regular patching after the installation. See user's guide for requirements regarding any updates to the host OS.

COMMERCIAL LICENSING

The Charon-AXP/SMA, /SMA PLUS, and /Station base license includes 1 virtual Alpha CPU. An additional CPU option can be purchased separately. The amount of emulated RAM is set to the maximum supported by model.

LICENSE PROTECTION

A valid license should be permanently available to Charon in the form of a local or network attached USB HASP license dongle, or a Software License. The license contains customer specific parameters and allows remote electronic updates. USB dongles enable a rapid switch-over to another host system as the Charon executable itself can be installed on multiple systems for disaster recovery purposes. Flexible licensing options allow combining multiple instances of different Charon products on a single host system.

DISTRIBUTION

Charon Release notes, User manuals and Software Product Descriptions are available for download from the Stromasys Product Documentation and Knowledge Base web pages. Downloading installation kits and patches requires a partner account or credentials provided by Stromasys on an individual basis.

CHARON UTILITIES

Charon-AXP/SMA/SMA+/Station on Windows is delivered with a Charon management tray icon, a single-window application which consolidates all Charon management tasks: creating and configuring Charon instances, managing Charon licenses, configuring host hardware resources for Charon needs, etc. The following applications are invoked from the tray icon:

- **HASP License Details** for viewing Charon licenses
- **License Update Tool** for updating Charon licenses
- **Network Control Center** for managing Charon network drivers and settings
- **SCSICheck** for providing configuration assistance for directly connected host devices
- **Virtual Disk Tool** for creating empty disk image files (.vdisk)

Stromasys **Charon Guest Utilities for OpenVMS** version 6.1 and above are supplied on a disk image to provide the following functionality:

- **Tape Utilities Package** for manipulating virtual tape images and managing a virtual SCSI tape changer
- **VMS bypass driver** for emulating DU/DR/DG/DQ/DI disk devices
- **Power consumption optimization (IDLE) VMS utility** for implementing energy saving mode when a virtual AXP CPU is idle



VIRTUALIZED HARDWARE

| Charon-AXP Products | Charon-AXP/Station | Charon-AXP/SMA | Charon-AXP/SMA PLUS |
|---|--|--|--|
| Emulated hardware models. Base license includes single CPU (in brackets: maximum possible number of CPUs) | AlphaStation 200, 250 (1 CPU) | DEC3000 (1 CPU) AlphaServer 300, 400, 1000 (1 CPU) AlphaServer 2000, 4000 (2 CPUs) | DMCC, Flexor OEM systems (1 CPU) AlphaStation 500, 600, DPW, XP900, XP1000 AlphaServer 800, 1200, DS10 (1 CPU) AlphaServer DS20, DS25 (2 CPUs) AlphaServer 2100, 4100, ES40 (4 CPUs) |
| Emulated RAM / available virtual PCI slots | Up to 4 GB / up to 10 emulated PCI controllers | Up to 8 GB (up to 1GB for DEC3000) / up to 20 emulated PCI controllers | Up to 8 GB (Up to 16 GB for ES40) / up to 20 emulated PCI controllers |
| Storage adapter support | Emulated SCSI adapter KZPBA; up to 120 storage units (disks, tapes, and CD/DVD) supported simultaneously. For VMS only: VMS Bypass driver enabling emulated FC (DG), MSCP (DU), IDE (DQ), DSSI (DI), and RAID (DR) disks | | |
| Disk storage support | Virtual disk images on a local and remote Windows file system (.vdisk container files); physical SCSI disks and partitions; iSCSI disks; SAN attached storage volumes (\\.\PhysicalDriveX or \\.\SCSI devices) | | |
| Tape storage support | Virtual tape images on a local and remote Windows file system (.vtape container files); physical SCSI tape drives (\\.\TapeX or \\.\SCSI devices) | | |
| CDROM / Floppy disk support | Virtual CD/DVDs images (.iso container files); physical CD/DVD drives (\\.\CdRomX devices) / Physical floppy drive 1.44 MB (\\.\A: device) | | |
| Ethernet network support | Emulated PCI DEC 21x4x adapter family: DE435, DE450, DE500BA | | |
| Console / serial lines / on-board parallel port | OPA0 console attached to a Windows terminal emulator, a physical serial port (COMxx: device), or a TCP/IP socket / emulated 8 serial lines PBXDA controller / pass through to the host server parallel port | | |
| Guest operating systems | For single AXP CPU configurations: OpenVMS 6.2-1H3 – OpenVMS 8.4 (For DEC3000 the earliest VMS version is 6.1), Tru64 UNIX 3.2C – 5.1B (For DEC3000 the earliest Tru64 version is 3.2). For multiple AXP CPU configurations: OpenVMS 7.1-2 – OpenVMS 8.4, Tru64 UNIX 4.0F – 5.1B (also known as: Compaq or HP Tru64 UNIX) | | |
| Additional Charon utilities | Charon-AXP tray management centre; IDLE (supported for single AXP CPU configurations only); HASP_VIEW; HASPRUS; mkdisk; SCSICheck; Charon Network Control Center | | |

Host system requirements

| | |
|------------------------------|---|
| Host operating system | Microsoft Windows 7, 8.1, 10 (Pro and Enterprise editions, 64 bit); Windows Server 2008 R2 SP1 with KB2949927 patch; Windows Server 2012 R2; on a physical host, or on VMware ESXi 5.5 and 6.x up to 6.5 |
| Host CPU/RAM | Number of host system CPU cores $\geq 2 \times$ (number of emulated AXP CPU cores); host RAM ≥ 2 GB + (amount of emulated AXP RAM). These guidelines for host system sizing must be reviewed for every use case. |
| Recommended hardware | HP ProLiant servers; Intel Xeon v4 E3, E5, E7 CPU family, or Intel Core 7 th generation CPU family; frequency 3 GHz or above |

Ordering information

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|--------------------------------|----------------|----------------|----------------|
| Unlimited license | CHAXP-805IP-WI | CHAXP-800IP-WI | CHAXP-807IP-WI |
| Annual license | CHAXP-805IY-WI | CHAXP-800IY-WI | CHAXP-807IY-WI |
| Annual GOLD Support | CHAXP-805IU-WI | CHAXP-800IU-WI | CHAXP-807IU-WI |
| Annual PLATINUM Support | CHAXP-805IT-WI | CHAXP-800IT-WI | CHAXP-807IT-WI |
| Backup license | CHAXP-805IK-WI | CHAXP-800IK-WI | CHAXP-807IK-WI |
| Additional CPU | N/A | CHAXP-CPUIP-WI | CHAXP-CPUIP-WI |

STROMASYS INC

Americas Region
2840 Plaza Place
Ste 450
Raleigh, NC 27612
United States of America
Phone: +1 919 239 8450
Fax: +1 919 239 8451
us.sales@stromasys.com

STROMASYS SA

Europe, Middle East & Africa
Avenue Louis-Casai 84
5th Floor
1216 Cointrin-Geneva
Switzerland
Phone: +41 22 794 1070
Fax: +41 22 794 1073
emea.sales@stromasys.com

STROMASYS ASIA PACIFIC LTD

Asia Pacific Region
Room 1102, 11/F, Lee Garden One
33 Hysan Avenue
Causeway Bay, Hong Kong
Hong Kong SAR of People's Republic of China
Phone: +852 3959 8788
Fax: +852 3959 8800
apac.sales@stromasys.com



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