

SOFTWARE PRODUCT DESCRIPTION

CHARON-AXP/DS/ES/GS for Linux 64 bit

Product version: 4.5; Build 155-04

Description

CHARON-AXP/DS/ES/GS are members of the CHARON cross-platform hardware virtualization product family. CHARON-AXP creates the virtual replica of the original AlphaServer hardware inside a standard 64 bit x86 compatible computer system. It will run the original Alpha binary code, including operating systems like OpenVMS and Tru64 UNIX, their layered products, and applications.

CHARON-AXP/DS/ES/GS for Linux 64 bit is designed to replace the following AlphaServer computer systems by its virtual equivalent running on a Linux host platform:

CHARON-AXP product	Hardware to replace
CHARON-AXP/DS10	AlphaServer DS10, DS15
CHARON-AXP/DS20	AlphaServer DS20, DS25
CHARON-AXP/ES40	AlphaServer ES40, ES45, ES47
CHARON-AXP/GS80	AlphaServer GS80, GS60, ES80
CHARON-AXP/GS160	AlphaServer GS140, GS160
CHARON-AXP/GS320	AlphaServer GS320, GS1280

Most of the original AlphaServer hardware is virtualized, allowing the **OpenVMS** or **Tru64** operating system and all software that is running in that environment to remain working as always. Very few changes are required to the original software (operating system, layered products, or applications). The Tru64 kernel might require a rebuild.

Network

CHARON-AXP virtualizes the 10/100 Mbps Ethernet controllers from the DEC 21x4x family, ensuring support of any AlphaServer installation. Any protocol that ran over a physical Ethernet link (DECnet, TCP/IP, and LAT) will run over a virtualized link. The virtual network adapter is recognized by the operating system which assumes it will run at 10/100Mbps, but since it's virtualized it may exceed that speed when connected to a 1/10Gbps adapter in the host system. However the network performance also depends on design limitations of the guest VMS/Tru64 OS.

Storage

CHARON-AXP provides support for AlphaServer storage devices: disk, and tape drives via virtual KZPBA SCSI and virtual KGPSA FC adapters and CD/DVD drives via virtual DQA0 IDE adapter. CHARON-AXP allows connecting Alpha SCSI devices to logical disks or tapes which appear as container files in the host operating system; as well as connected physical SCSI devices.

Pass Through

Emulex FC adapters compatible with original AlphaServer hardware (FC KGPSA) could be used by CHARON-AXP to provide direct access to SAN.



Performance

CHARON-AXP running Tru64 5.1B delivers (per CPU) 388 SPEC2000 INT and 371 SPEC2000 FP on an Intel Core i7 965 (3.2 GHz) host system.

CHARON-AXP benefits from the newer, faster hardware, offering owners of most AlphaServer systems equal or better performance. The constant improvements Stromasys makes to the CHARON products, together with rapidly developing faster hardware, will further shift the balance to favor cross-platform virtualization.

As a reference, the table below shows performance measurements of the original AlphaServer hardware using the standard SPEC2000 benchmark. Those numbers are available online from official SPEC2000 web page.

Single CPU benchmark	SPEC2000 INT	SPEC2000 FP
AlphaServer 4100 5/533	176	176
AlphaServer DS10 6/500	300	383
AlphaServer DS20 6/677	425	455
AlphaServer ES40 6/500	299	382
AlphaServer GS80 6/731	352	405
AlphaServer GS160 68/1000	561	581

Product license key

CHARON supports a wide array of license key solutions, including a hardware HASP key, network licensing, and a software license key. All license key solutions preserve the customer specific license parameters, allowing remote electronic updates and enabling rapid change of host systems as the CHARON executable can be installed on multiple systems.

Licensing

The CHARON-AXP/DS/ES/GS base license includes half of the maximum (available for a particular model) quantity of virtual Alpha CPUs. Additional CPU options can be purchased separately. The amount of emulated RAM is set to the maximum supported by the AlphaServer model.

CHARON-AXP licensing allows combining multiple instances of CHARON-AXP emulating different Alpha models on a single multi-core host system.

CHARON-AXP Products
CHARON-AXP/DS10/DS20/ES40/GS80/GS160/GS320 for Linux 64 bit version 4.4 build 147-01
Virtualized Alpha hardware details

Emulated hardware model	AlphaServer DS10	AlphaServer DS20	AlphaServer ES40	AlphaServer GS80	AlphaServer GS160	AlphaServer GS320
Alpha CPUs (base/maximum)	1/1	1/2	2/4	4/8	8/16	16/32
Emulated RAM	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 64 GB	Up to 128 GB	Up to 256 GB
Available virtual PCI slots	4	6	10	27	27	27
Storage adapter support	Emulated PCI SCSI KZPBA adapters (2 preloaded for DS20; 1 preloaded for GS series); up to 120 storage units (disks, tapes, and CD/DVD) supported simultaneously; Emulated Acer Labs 1543C IDE/ATAPI controller (1 preloaded; only virtual IDE CD/DVD devices supported)					
Disk storage support	Virtual disk images on a local and remote Linux file system (.vdisk container files); physical SCSI disks (/dev/sdN) and partitions (/dev/sdNL); iSCSI disks; SAN attached storage volumes					
Tape storage support	Virtual tape images on a local and remote Linux file system (.vtape container files); physical SCSI tape drives (/dev/sgN devices);					
CDROM/Floppy disk support	Virtual CD/DVDs images on a local and remote Linux file system (.iso container files); physical CD/DVD drives (/dev/cdrom, /dev/srN devices) / -					
Ethernet Network support	Emulated PCI DEC 21x4x adapter family: DE435, DE450, DE500AA, DE500BA (2 DEC 21143 controllers preloaded for DS10)					
Fiber Channel	Direct connection to SAN with physical KGPSA or compatible EMULEX HBA adapters					
Console/Serial lines	OPA0 console attached to a Linux terminal, a physical serial port(/dev/ttySN device), or a TCP/IP socket					
Supported VMS versions	OpenVMS 7.1-2 – OpenVMS 8.4			OpenVMS 7.2-1H1 – OpenVMS 8.4		
Supported Tru64 versions	Tru64 UNIX 4.0F – 5.1B (also known as: Compaq or HP Tru64 UNIX)			Tru64 UNIX 4.0G – 5.1B (also known as: Compaq or HP Tru64 UNIX)		
Additional CHARON utilities	IDLE (supported on OpenVMS); hasp_view; mkdisk					

Host system requirements

Host operating system	Red Hat Enterprise 6.2 - 6.4 (64 bit) and Fedora 16 – 19 (64 bit) on top of a physical host or on VMware ESXi 4.1 update 1 or ESXi 5.x
Host CPU/RAM	Amount of host system CPU cores $\geq 2 \times$ (amount of emulated AXP CPU cores); Host RAM ≥ 2 GB + (amount of emulated AXP RAM)
Recommended Hardware	HP Proliant servers; Intel Xeon E7 or 5600 CPU family, or Intel Core i7 G2 and G3 CPU family, frequency at least 3.0 GHz;

Ordering information

Unlimited/annual license	CHAXP-801IP-LI / CHAXP-801IY-LI	CHAXP-802IP-LI / CHAXP-802IY-LI	CHAXP-804IP-LI / CHAXP-804IY-LI	CHAXP-808IP-LI / CHAXP-808IY-LI	CHAXP-809IP-LI / CHAXP-809IY-LI	CHAXP-909IP-LI / CHAXP-909IY-LI
Annual GOLD/PLATINUM Support	CHAXP-801IU-LI / CHAXP-801IT-LI	CHAXP-802IU-LI / CHAXP-802IT-LI	CHAXP-804IU-LI / CHAXP-804IT-LI	CHAXP-808IU-LI / CHAXP-808IT-LI	CHAXP-809IU-LI / CHAXP-809IT-LI	CHAXP-909IU-LI / CHAXP-909IT-LI
Backup license / Add a CPU	CHAXP-801IK-LI / CHAXP-CPUIP-LI	CHAXP-802IK-LI / CHAXP-CPUIP-LI	CHAXP-804IK-LI / CHAXP-CPUIP-LI	CHAXP-808IK-LI / CHAXP-CPUIP-LI	CHAXP-809IK-LI / CHAXP-CPUIP-LI	CHAXP-909IK-LI / CHAXP-CPUIP-LI

PRESERVING YOUR SOFTWARE INVESTMENT ACROSS HARDWARE GENERATIONS !

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