



# CHARON VAX/XL Plus for Windows

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### Functionality

CHARON-VAX/XL Plus is designed to prolong the use of the VAX/VMS operating system, layered products and user applications. The hardware components emulated by CHARON-VAX/XL Plus are designed to operate like their hardware equivalents.

CHARON-VAX/XL Plus can in principle execute any VAX operating system or binary application that runs on its equivalent hardware VAX configuration. It is designed to replace single CPU VAX machines in administrative environments with terminals connected via terminal servers.

The emulated functionality does not include diagnostic or maintenance modes or delays to simulate mechanical device behavior.

For a list of emulated components please see the Features Matrix.



**Salem Automation**  
Legacy Systems Virtualization

**CHARON-VAX/XL (PLUS)** is a member of the CHARON cross-platform hardware virtualization product-family by Stromasys. CHARON-VAX creates the virtual replica of the original VAX hardware interface inside a standard computer system. It will run the VAX operating system and application software in their existing, binary form. It quickly moves your VAX software to a more modern general purpose computer.

**CHARON-VAX/XL (PLUS)** is designed to replace a VAX4000-108, VAX 3100-98, VAX3600, VAX3900 system by its virtual equivalent running on a Windows XP/2003 host platform. Most VAX- hardware is virtualized, allowing the VAX/VMS operating system and all software that is running in that environment to remain working as always. No changes to the original software (operating system, layered products or applications), its procedures or handling have to be applied. CHARON-VAX/XL is available in a standard and a PLUS version. The PLUS version includes Advanced CPU Emulation (ACE) providing 3 - 5 times better CPU performance compared to the Standard product.

### NETWORK

CHARON-VAX virtualizes the Ethernet controllers as included in the original VAX hardware that is replaced. Any protocol that ran on these controllers (DECnet, TCP/IP, LAT) will run over this virtualized link.

### STORAGE

CHARON-VAX/XL (PLUS) provides support for the following VAX storage device types: (T)MSCP, DSSI and SCSI. CHARON translates all these VAX types to any modern technology (SCSI, IDE, SATA, SAS or SAN) by means of logical files in a Windows directory, physical Windows disks or physical SCSI devices.

### HOST SYSTEM REQUIREMENTS

A dedicated Windows XP or 2003 Server Standard Edition host system, with a dual CPU of at least 1 GHz, CD-ROM, minimum one dedicated Ethernet adapter, a USB port for the license key and enough disk space for the VAX disks. The minimum host memory requirement depends on the CPU emulated and whether ACE is used. CHARON-VAX/XL (standard) requires a minimum of 1 GB host memory and 2 GB for CHARON-VAX/XL PLUS. CHARON-VAX/XL (PLUS) software requires approximately 30 MB disk space on the host system.

### PERFORMANCE

The CHARON-VAX/XL (PLUS) CPU performance scales with the clock frequency of the host CPUs provided the host memory latency is increased by the same factor. The performance also depends on the CHARON-VAX version.

The "Plus" version is identical to the standard version with the exception that it includes the advanced VAX CPU emulation mode (ACE), significantly improving the virtual VAX CPU speed at the expense of additional host memory. On a 3.2 GHz Intel i7 based system, the CHARON-VAX/XL PLUS virtual CPU delivers approximately 125 VUPS. The standard CHARON-VAX/XL CPU (without Plus) emulator provides about one third of this. The original hardware VAX CPU provided up to 38 VUPS (VAX3100-98). Therefore VAX virtualization will deliver a major performance increase. Faster storage and memory components of the modern host computer equipment will increase the overall performance of the virtual VAX even more.

### Product License Key

The CHARON USB-type license key is permanently connected to the host system running the emulator. It preserves the customer specific license parameters, allows remote electronic updates and enables rapid change of host systems as the CHARON executable itself can be installed on multiple systems.

### Host system requirements

A dedicated Windows 2003 Server Standard Edition or XP host system with two (2) or more hardware CPUs of at least 2 GHz, a CD-ROM, minimum one (1) dedicated Ethernet adapter, a USB port for the license key and enough storage space for the VAX disks.

The minimum host memory requirement is reflected in the Features Matrix. For a list of emulated components please see the Features Matrix.

### Recommended tools

HP Pathworks 32:

- *VT525 terminal emulator*
- *X-terminal emulator*
- ◆ *Windows file copy*

### Advanced CPU Emulation

ACE dynamically optimizes the VAX instruction interpretation. This does not require code pre-processing and provides its full capability instantly. As the optimization takes place below the emulated hardware level, the emulator remains fully VAX hardware compatible and is completely transparent to VAX operating systems and applications.

### License key

The CHARON hardware license key is permanently connected to the host system running the emulator. It preserves the customer specific license parameters, allows remote electronic updates and enables rapid change of host systems as the CHARON executable itself can be installed on multiple systems.

The MTBF of the key is more than 100 years. For mission critical applications a backup key containing 720 hours execution time can be ordered to meet any disaster recovery plan that requires replacement hardware.



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VIRTUALIZED HW	VAX4000-108	VAX3100-98	VAX3600/3900
Virtualized VAX CPU	KA54-A	KA56-A	KA650-A/B KA655-A/B
Earliest VMS version	5.5-2	5.5-2	4.6
Max. virtual VAX memory	512 MB	512 MB	512 MB
(T)M SCP device controller	Yes <sup>1) 2)</sup>	No	Yes <sup>1)</sup>
SCSI subsystem	2 Controllers, each supporting 7 addresses. Using LUN's each address supports 8 similar devices	2 Controllers, each supporting 7 addresses. Using LUN's each address supports 8 similar devices	No
VAX SCSI disks	Physical SCSI disks or image files	Physical SCSI disks or image files	No
VAX SCSI tapes	SCSI tape drives via a SCSI port	SCSI tape drives via a SCSI port	No
Ethernet	Up to 5 Ethernet controllers in total. Connections up to 100 Mbps with the PLUS version. The Standard version supports 10 Mbps	1 Ethernet controller. Connections up to 100 Mbps with the PLUS version. The Standard version supports 10 Mbps	Up to 4 Ethernet controllers in total. Connections up to 100 Mbps with the PLUS version. The Standard version supports 10 Mbps
VAX/VMS clustering	NI cluster or Shared Disk Cluster with simulated M SCP controllers	NI Cluster	NI cluster or Shared Disk Cluster with simulated M SCP controllers
Asynchronous Serial Lines	CXA16, CXB16, CXY08, DHQ11, DHV11, DHW42-AA, -BA, -CA	DHW42-AA, -BA, -CA	CXA16, CXB16, CXY08, DHQ11, DHV11
QBU S subsystem	Yes <sup>2)</sup>	No	Yes <sup>2)</sup>
D SSI subsystem	Yes	No	No

### SALEM AUTOMATION CUSTOMERS' TESTIMONIALS:

#### LARGE MID-WEST MUNICIPALITY SENT APRIL 16, 2009

Salem Automation Incorporated provided excellent value, and that the expertise of the engineer who helped us was amazing. I would not want to do another migration without their support. By implementing this solution I'm convinced we avoided significant downtime of key systems (courts and police records) for which no other effective solution was available.

#### MANUFACTURING FACILITY: EMAIL SENT FEBRUARY 17, 2009

I wanted to take this opportunity to express my gratitude for Salem's considerable effort in making the Alpha System swap-over a success. Your extensive knowledge allowed for a smooth transition to the virtual server, and provided us with the correct way to backup our system in the event a restore should be required. It was a pleasure working with you.

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