SOFTWARE PRODUCT DESCRIPTION

# CHARON-VAX/XK PLUS, /XL, and /XL PLUS for Windows

Product version 4.7

Document: 30-15-075-003

## DESCRIPTION

CHARON-VAX/XK PLUS, CHARON-VAX/XL and CHARON-VAX/XL PLUS are members of CHARON-VAX cross-platform hardware virtualization family of products by Stromasys. They are designed to replace VAX 4000-108, VAX 3100-98, VAX 3600, VAX 3900, VAX 4700, VAX 4705, and VAX 6310 systems by its virtual equivalent with 256 MB or 512 MB emulated VAX RAM running on a standard computer system. CHARON-VAX creates the virtual replica of the original VAX hardware, allowing the VAX/VMS operating system and all software that is running in that environment to remain working as always in their existing, binary form. No changes to the original software (operating system, layered products or applications), its procedures or handling have to be applied.

## NETWORK

CHARON-VAX virtualizes the Ethernet controllers present in the original VAX hardware. Any protocol that ran on these controllers (DECnet, TCP/IP, LAT) will run over 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, SATA, SAS) by means of logical files in a Windows directory or physical LUNs attached locally or remotely by iSCSI, SAN, or NAS.

## HOST SYSTEM REQUIREMENTS

A physical system or virtual VMware appliance with a dual core CPU (Intel Xeon v3 E3, E5, and E7 CPUs with a clock frequency of 3GHz and higher are recommended), one dedicated Ethernet adapter, an optional USB port for the license key and enough disk space for the VAX disks. CHARON-VAX/XK PLUS, /XL, and /XL PLUS require a minimum of 3 GB host memory.

## OPERATING SYSTEM REQUIREMENTS

Microsoft Windows Server 2012 R2 Standard and Datacenter editions 64 bit, Microsoft Windows Server 2008 R2 Standard and Enterprise (SP1) Editions 64 bit, Microsoft Windows 7 Professional and Ultimate (SP1) Editions 64 bit, Microsoft Windows 8.1 Professional Edition 64 bit on top of a physical host or on VMware ESXi 5.x or 6.0 or on Microsoft Hyper-V.

## PERFORMANCE

CHARON-VAX is available in a standard and a PLUS version. The PLUS version includes Advanced CPU Emulation (ACE) providing 4 – 6 times better CPU performance compared to the Standard product. On an Intel Core i7 965 (3.2 GHz) based system, the CHARON-VAXPLUS virtual CPU delivers approximately 125 VUPS. The standard CHARON-VAX CPU (without Plus) emulator provides about one quarter of it. For the reference, the original hardware VAX CPU provided 1 VUP (MicroVAX II) up to 38 VUPS (VAX3100-96), therefore VAX virtualization will deliver a major performance increase.

## CHARON APPLICATION PROGRAM INTERFACE (CHAPI)

CHAPI is an open API to emulated QBUS bus, thus available for QBUS based emulators. It allows creation of emulated QBUS devices, and connects emulated peripherals which are designed as external C++ modules to the emulator kernel. CHAPI library functions provide standard device elements like registers, interrupt logic, etc.

## LICENSE PROTECTION

A valid license should be permanently available to CHARON. It can be represented by a local or network attached USB HASP license key, or a Software License. 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. License technically allows combining multiple instances of CHARON-VAX and CHARON-AXP on a single multi-core host system.

## DISTRIBUTION

CHARON Installation kits, Release notes, User manuals, Software Product Descriptions, and Patches are available for download through partner and direct customer login from Stromasys fileserver.

## CHARON UTILITIES

- **HASP_View** for viewing CHARON license(s)
- **License Update Service** for updating CHARON license
- **Network Control Center** for managing CHARON network drivers and settings
- **DEVcheck** for providing configuration assistance for directly connected SCSI devices
- **MKdisk** for creating empty disk image files (.vdisk)
- **MTD** for transferring data between physical tape and CHARON tape container file
- **CHARON Launcher** for interactive (start/stop/configure/setup service) CHARON management
- **CHARON Service Manager** for managing CHARON instances as services
- **HOSTprint** for redirecting QBUS LPV11 device (virtual parallel port) output to a Windows local or network printer
- **IDLE VMS utility** for implementing energy save mode when virtual VAX CPU is idle
- **Slowdown VMS utility**: for slowing down CHARON virtual CPU to match original VAX performance level
- **Shutdown VMS utility** for orderly shutdown CHARON after VMS

## USER ENVIRONMENT

After installation the system will behave like the VAX it replaces and should be treated like that VAX. Operating procedures will be the same and we advise not to treat it as a Windows system, despite the fact it runs on a Windows kernel. The product documentation includes an advisory for switching off unused Windows services and the Windows kernel can be disconnected from the network after installation.

stromasys
engineered solutions

## VIRTUALIZED HARDWARE

| | VAX 4000-108 | VAX 3100-98 | VAX 3600/3900 | VAX 4700/4705 | VAX 6310 |
|---|---|---|---|---|---|
| **Virtualized VAX CPU** | KA54-A | KA56-A | KA650-A/B / KA655-A/B | KA692-A/KA694-A | KA-62B |
| **Earliest VMS version** | 5.5-2 (5.5-2H4 if second SCSI adapter is used) | | 4.5 | 5.5-2 | 5.5-2 |
| **Max. virtual VAX memory** | XK PLUS: 256 MB; XL and XL PLUS: 512 MB | | | | |
| **XMI and BI subsystems** | No | | | No | Yes (KDB50) |
| **QBUS subsystem** | Yes [1] | No | Yes [1] | Yes [1] | No |
| **UNIBUS subsystem** | No | | | No | Yes (TUK50) |
| **DSSI subsystem** | Yes (HSD50) | No | No | YES (two built-in PAA/PAB and two optional PAC/PAD DSSI adapters, HSD50 storage controller) | No |
| **SCSI subsystem** | 2 controllers, each support 7 SCSI IDs. Each SCSI ID could be used with up to 8 LUNs | | No | No | No |
| **Emulated VAX disks:** | Container files; Local, iSCSI and SAN partitions; physical SCSI disks | | Container files; Local, iSCSI and SAN partitions | Container files; Local disk drives, iSCSI and SAN partitions | Container files; Local, iSCSI and SAN partitions |
| **Emulated VAX tapes** | Container files, Windows tape drives, physical SCSI tape drives | | | | |
| **Network** | Up to 5 Ethernet controllers in total including a built-in SGEC and QBUS controllers: DEQNA, DELQA, DESQA | 1 build-in Ethernet controller SGEC | Up to 4 QBUS Ethernet controllers: DEQNA, DELQA DESQA | Up to 5 Ethernet controllers in total including a built-in SGEC and QBUS controllers: DEQNA, DELQA, DESQA | Multiple BI DEBNI Ethernet controllers (limited by number of available virtual bus slots) |
| **Network performance** | Standard version supports 10 Mbps connections; PLUS version supports 100 Mbps connections. PLUS version could be used with 1 Gbps connections provided it is tested in advance. | | | | |
| **VAX/VMS clustering** | NI or Shared Disk Cluster with emulated MSCP or DSSI controllers | NI Cluster | NI cluster or Shared Disk Cluster with emulated MSCP controllers | NI or Shared Disk Cluster with emulated MSCP or DSSI controllers | NI Cluster |
| **Asynchronous Serial Lines** | QUART (4 lines), CXA16, CXB16, CXY08, DHQ11, DHV11, DHW42-AA, -BA, -CA | QUART (4 lines), DHW42-AA, -BA, -CA | UART, CXA16, CXB16, CXY08, DHQ11, DHV11 | CXA16, CXB16, CXY08, DHQ11, DHV11 | UART |
| **Graphics subsystem** | No | No | Dummy VCB_02 can be loaded in order to force VMS to accept D type licenses [2] | No | No |

[1] Configurable QBUS components are the MSCP disk controller RQDX3, the TMSCP tape controller TQK50, the serial line controllers as above and the Ethernet controllers DEQNA, DELQA and DESQA. MSCP disk emulation is the preferred storage device emulation in case of heavy disk I/O.

[2] An X-Windows emulator on MS Windows system can be used to display graphics provided by an X Client running on CHARON

**Each virtual VAX model follows the characteristics of its VAX hardware equivalent, requiring the corresponding level of license units and supports the peripherals particular to that VAX model. The virtual VAX does not include diagnostic and maintenance modes or delays to simulate mechanical device behavior.**

| Ordering information | CHARON-VAX/XK PLUS | CHARON-VAX/XL | CHARON-VAX/XL PLUS |
|---|---|---|---|
| Unlimited runtime license | CHVX-221-PE-WI | CHVX-021-PF-WI | CHVX-221-PF-WI |
| One year license | CHVX-221-YE-WI | CHVX-021-YF-WI | CHVX-221-YF-WI |
| 720 hour backup license | CHVX-221-KE-WI | CHVX-021-KF-WI | CHVX-221-KF-WI |
| GOLD support (9x5) | CHVX-221-UE-WI | CHVX-021-UF-WI | CHVX-221-UF-WI |
| PLATINUM support (24x7) | CHVX-221-TE-WI | CHVX-021-TF-WI | CHVX-221-TF-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
28/F, Room D, Tower B, Billion Centre
1 Wang Kwong Road
Kowloon Bay
Hong Kong SAR of People's Republic of China
Phone: +852 2853 1600
Fax: +852 2853 1699
apac.sales@stromasys.com

www.stromasys.com

stromasys
engineered solutions