DESCRIPTION

CHARON-VAX/XM and CHARON-VAX/XM PLUS are members of CHARON-VAX cross-platform hardware virtualization family of products by Stromasys. They are designed to replace VAXstation 4000-90, VAX 4000-106, VAX 3100-96, VAX 3600, VAX 3900, or MicroVAX II systems by its virtual equivalent 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/XM (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 appliance (ESXi 4.1 update 1 - ESXi 5.x) running Windows Server 2012 (R2) Standard Edition - 64 bit version, Windows Server 2008 R2 (SP1) Standard and Enterprise Editions - 64 bit version, Windows 7 Professional and Ultimate (SP1) Editions - 32 bit and 64 bit versions, Windows 8.1 Professional Edition - 32 and 64 bit versions, with a dual CPU of at least 2 GHz, one dedicated Ethernet adapter, a USB port for the license key and enough disk space to keep the VAX disks. CHARON-VAX/XM requires a minimum of 2 GB host memory; CHARON-VAX/XM PLUS requires 3 GB.

PERFORMANCE

CHARON-VAX/XM 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-VAX/XM PLUS virtual CPU delivers approximately 125 VUPS where the standard CHARON-VAX/XM CPU 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.

PRODUCT LICENSE KEY

The HASP USB license key should be permanently connected to the host system. 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.
HASP allows running multiple CHARON-VAX and CHARON-AXP instances on a single host computer.

DISTRIBUTION KITS AVAILABLE FOR DOWNLOAD THROUGH PARTNER OR DIRECT CUSTOMER LOGIN FROM STROMASYS FTP

CHARON Installation kits, Release notes, User manuals, Software Product Descriptions, Patches

CHARON UTILITIES

- **HASP_View**: for viewing CHARON license content
- **HASPRUS**: for updating CHARON license
- **Network Control Center**: to manage CHARON network drivers and settings
- **DEVcheck**: provides configuration assistance for directly connected SCSI devices
- **MKdisk**: create empty VAX disk images
- **MTD**: transfer the data between physical tape and CHARON tape container file
- **CHARON Launcher**: start/stop/configure CHARON, setup CHARON services
- **Service Manager**: manage CHARON instances as services
- **HOSTprint**: redirect virtual parallel port (LPV11) to a Win-dows local or network printer (applicable to QBUS based CHARON systems only).
- **IDLE VMS utility**: suspend host CPU utilization if VMS is idle – energy save mode.
- **Slowdown VMS utility**: slow down CHARON virtual CPU to match original VAX performance level
- **Shutdown VMS utility**: shutdown CHARON
- **Web based User Interface**: CHARON-VAX instances could be started, stopped, and configured using a local or remote web browser.

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.

VIRTUALIZED HARDWARE

	VAX 4000-106	VAX 3100-96	VAX 4000-90	VAX 3600/3900	MicroVAX II
Virtualized VAX CPU	KA54-A	KA56-A	KA49-A	KA650-A/B KA655-A/B	KA630-A
Earliest VMS version	5.5-2 (5.5-2H4 if second SCSI adapter is used)			4.5	
Max. virtual VAX memory	128 MB				16 MB
QBUS subsystem	Yes [1]	No		Yes [1]	
DSSI subsystem	Yes (HSD50)	No			
SCSI subsystem	2 controllers (1 controller only in 4000-90), each support 7 SCSI IDs. Each SCSI ID could be used with up to 8 LUNs			No	
Emulated VAX disks	Container files; Local, iSCSI and SAN partitions; physical SCSI disks			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	1 build-in Ethernet controller SGEC	2 Ethernet controllers: built-in SGEC and TurboChannel PMAD-AA	Up to 4 QBUS Ethernet controllers	1 QBUS Ethernet controller
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 cluster or Shared Disk Cluster with DSSI or MSCP controllers	NI Cluster		NI cluster or Shared Disk Cluster with emulated MSCP controllers	No
Asynchronous Serial Lines	QUART (4 lines), CXA16, CXB16, CXY08, DHQ11, DHV11, DHW42-AA, -BA, -CA	QUART (4 lines), DHW42-AA, -BA, -CA	QUART (4 lines)	UART, CXA16, CXB16, CXY08, DHQ11, DHV11	UART, CXA16, CXB16, CXY08, DHQ11, DHV11
Graphics subsystem	No		Dummy graphics for VMS to accept D type licenses [2]	Dummy VCB02 for VMS to accept D type licenses [2]	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 delays to simulate mechanical device behavior, diagnostic, and maintenance modes.

ORDERING INFORMATION	CHARON-VAX/XM	CHARON-VAX/XM PLUS
Unlimited runtime license	CHVX-021-PD-WI	CHVX-221-PD-WI
One year license	CHVX-021-YD-WI	CHVX-221-YD-WI
720 hour backup license	CHVX-021-KD-WI	CHVX-221-KD-WI
GOLD support (9x5)	CHVX-021-UD-WI	CHVX-221-UD-WI
PLATINUM support (24x7)	CHVX-021-TD-WI	CHVX-221-TD-WI

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