Charon-SSP Version 3.0
Document version 6

DESCRIPTION

Charon-SSP is a member of Charon cross-platform hardware virtualization product family that creates a virtual replica of sun4m and sun4u SPARC family members on a standard x86-x64 computer system running on top of physical hardware, Linux operating system, or a Hypervisor.

Charon-SSP lets users of end of life SPARC servers/stations to continue using their applications without any changes while lowering operational costs and energy consumption.

Multiple instances can run on a single X86 standard host or existing virtualization infrastructure providing the benefits of consolidation, easy management and maintenance of these legacy systems.

Charon-SSP provides three virtualized SPARC models:

- Charon-SSP/4M based on SPARC-V8 32-Bit processor specification, MBUS for Processors/Memory interconnection and SBUS for IO peripherals.
- Charon-SSP/4U based on SPARC-V9 64-bit processor specification, UPA bus for Processor/Memory interconnection and PCI bus for IO peripherals.
- Charon-SSP/4U+ same as /4U using Intel VT-x / EPT to offload SPARC MMU operations onto hardware. This requires running on dedicated Intel host.

NETWORK

Charon-SSP maps 1 host physical Ethernet adapter for each emulated NIC or can bridge a physical Ethernet adapter with a number of tap devices to allow communication between Charon-SSP instances and the Linux host while multiplexing the physical Ethernet adapter for external communication.

All Solaris network protocols are supported transparently as well as Solaris IP multipathing and Solaris VNICs. Network booting and JumpStart installation is supported for Solaris 2.4 to Solaris 10.

GRAPHIC ENVIRONMENT

Solaris CDE, OpenWindow desktop and Java Desktop graphics environment are supported on Charon-SSP by nested X11 server running on the host. Native graphics are implemented via emulated CGTHREE, CGSIX and RageXL framebuffers with resolutions ranging from 800x600 to 1600x1280 pixels. Dual monitor configurations supported on these framebuffers for larger virtual desktops. Remote graphics client supported on Linux and Windows.

AUDIO

DBRI2 + CS4215 mmcodec virtualized components provide 8-bit/16-bit mono/stereo sound u-Law, a-Law, linear formats. Remote audio supported on Linux / PulseAudio server.

STORAGE

Charon-SSP provides virtualization for SCSI controllers and peripherals as follows:

- Virtual disks and tapes as container files residing on host file systems
- Raw partitions
- Physical disks / tapes.
- iSCSI targets

POWER SAVING

Charon-SSP provides a feature to reduce CPU power consumption on the Intel host when Solaris O.S. is idle. This feature can be enabled using the following options:

- Balanced
  Uses Intel power saving instructions to disable pipeline and reduce energy consumption
- Power save
  This option uses CPU thread suspension on Solaris IDLE condition to reduce host CPU usage.

MANAGEMENT

Charon Manager for Charon-SSP is a graphical user interface for creating, configuring and starting instances of virtual SPARC systems. It also provides access to the virtual consoles and log files as well as the following tools:

- Create Virtual Disk/Tape/Floppy
- License viewer/update
- Host information
- Virtual network create/delete
- X11 server start/stop
- Console configuration

PERFORMANCE

Charon-SSP 3.0 brings 2-level of dynamic instruction translation engine (Client JIT and Server JIT) which greatly increases CPU performance. The diagram shows virtual SPARC CPU test run on Solaris 10, on Charon-SSP/4U+ with Server JIT configuration, on HP Proliant DL380 Gen 10 @3.0GHz Intel CPU.
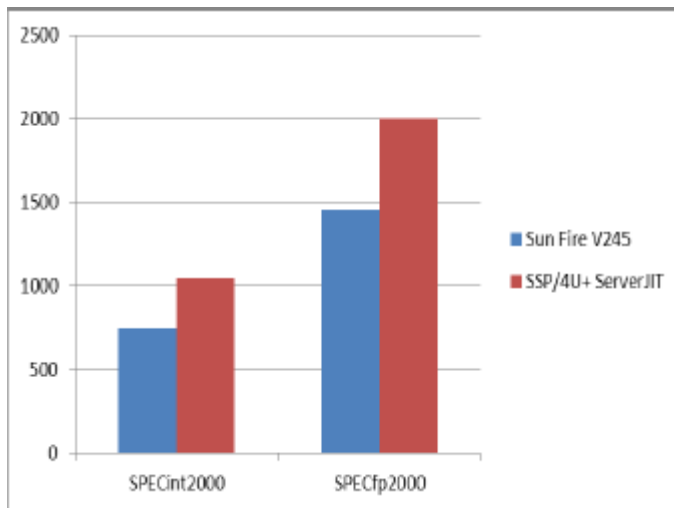
DISTRIBUTION

Charon-SSP is distributed as:

- Baremetal: installation ISO image contains host operating system, Charon-SSP and additional packages plus Baremetal GUI. There is no user access to the host OS.
- Barebone version contains customized Linux and Charon-SSP together.
- RPM packages for Oracle Linux, Red Hat, CentOS, available upon request.

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VIRTUALIZED HARDWARE

	Charon-SSP/4M (32 bit)	Charon-SSP/4U(+) (64 bit)
Number of SPARC CPUs (type Min/Max)	SPARC V8 1/4	SPARC V9 1/24
Emulated RAM	64MB to 512MB	1GB to 128GB
Bus type : Slots	SBUS: 12 slots	PCI: 16 slots
SCSI controllers	1	2
Maximum SCSI devices	7	30
Disks supported	physical/partition/vdisk	physical/partition/vdisk
CD/DVD support	physical/ISO image	physical/ISO image
Tape support	physical/vtape	physical/vtape
Ethernet Controllers	2	19
Serial Ports	10	34
Graphics Support	CGTHREE, CGSIX, X11 nested server	RAGE XL, CGSIX, X11 nested server
O.S. support	SunOS 4.1.3/4.1.4 Solaris 2.3 to Solaris 9	Solaris 2.5.1 to Solaris 10
Audio	DBRIe+CS4215 codec	DBRIe+CS4215 codec
PCI pass-through	-	NI IEEE488 GPIB Digi Serial Adapter

HOST REQUIREMENTS

Host	Description
Operating system	Oracle Linux, RHEL 7.x; CentOS 7.x (for Charon-SSP BareMetal and Barebone distributions no preinstalled OS is required).
Number of Cores	At least 2 (3 for Server JIT) + amount of emulated processors per virtual SPARC VM
Memory size	At least 4GB (8GB for Server JIT) + amount of emulated memory per virtual SPARC VM.
Recommended Hardware	Intel Server based on Haswell v3 processors or later, or Desktop Core I7 (CPU frequency at least 3.0GHz).
Supported hypervisor	VMware ESXi 5.x and 6.x, Xen, Microsoft Hyper-V, Linux KVM

Charon-SSP products and part numbers

Charon-SSP product	Emulated CPU type	CPU / RAM limitations		Perpetual / Evaluation license [2]	GOLD / PLATINUM annual support [3]	GOLD / PLATINUM annual subscription [2]	Backup / Spare license [2]
Charon-SSP/4M	V8	4 / 512MB		CHSSP-4M-IP / CHSSP-4M-IV	CHSSP-4M-IU / CHSSP-4M-IT	CHSSP-4M-ICG / CHSSP-4M-ICP	CHSSP-4M-IK / CHSSP-4M-IS
Charon-SSP/4U LL	V9	1 / 1GB		CHSSP- 4ULL-IP / CHSSP- 4ULL-IV	CHSSP- 4ULL-IU / CHSSP- 4ULL-IT	CHSSP-4ULL-ICG / CHSSP-4ULL-ICP	CHSSP- 4ULL-IK / CHSSP- 4ULL-IS
Charon-SSP/4U ML	V9	12 / 64GB		CHSSP- 4UML-IP / CHSSP- 4UML-IV	CHSSP- 4UML-IU / CHSSP- 4UML-IT	CHSSP-4UML-ICG / CHSSP-4UML-ICP	CHSSP- 4UML-IK / CHSSP- 4UML-IS
Charon-SSP/4U HL	V9	24 / 128GB		CHSSP- 4UHL-IP / CHSSP- 4UHL-IV	CHSSP- 4UHL-IU / CHSSP- 4UHL-IT	CHSSP-4UHL-ICG / CHSSP-4UHL-ICP	CHSSP- 4UHL-IK / CHSSP- 4UHL-IS
Charon-SSP/4U+ LL	V9 (+)[1]	1 / 1GB		CHSSP- 4U+LL-IP / CHSSP- 4U+LL-IV	CHSSP- 4U+LL-IU / CHSSP- 4U+LL-IT	CHSSP-4U+LL-ICG / CHSSP-4U+LL-ICP	CHSSP- 4U+LL-IK / CHSSP- 4U+LL-IS
Charon-SSP/4U+ ML	V9 (+)[1]	12 / 64GB		CHSSP- 4U+ML-IP / CHSSP- 4U+ML-IV	CHSSP- 4U+ML-IU / CHSSP- 4U+ML-IT	CHSSP-4U+ML-ICG / CHSSP-4U+ML-ICP	CHSSP- 4U+ML-IK / CHSSP- 4U+ML-IS
Charon-SSP/4U+ HL	V9 (+)[1]	24 / 128GB		CHSSP- 4U+HL-IP / CHSSP- 4U+HL-IV	CHSSP- 4U+HL-IU / CHSSP- 4U+HL-IT	CHSSP-4U+HL-ICG / CHSSP-4U+HL-ICP	CHSSP- 4U+HL-IK / CHSSP- 4U+HL-IS

[1] Accelerated by offloading part of the emulated CPU workload onto hosting hardware

[2] Please contact Stromasys Sales team for Charon licensing details

[3] Please refer to Charon Service Descriptions for GOLD and PLATINUM terms, conditions, and SLAs

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