

Power Virtual Server for Oracle Optimization

Build a hybrid cloud environment with Power Systems Virtual Server to run an off-premises Power stack identical to your existing on-premises Power-based infrastructure for Oracle workloads

- Fully certified stack with PowerVM, AIX, IBM i, SAN-based storage, network adapters, providing full Oracle support
- Meets Oracle's hard partitioning requirements
 - Sub-capacity licensing – License only the CPUs available to Oracle Database and middleware
 - Optimize Oracle licensing to provide reduced TCO, lower than any hyperscale cloud environment
- Full support for Oracle Database, RAC, Fusion Middleware, Applications
- Highest off-prem scalable Oracle DB Single Instance capability
- Superior storage resiliency, enterprise class platform with all flash NVM-E enabled network storage

Run the same Oracle certified solution off-premises as you currently use on-premises

Enterprise class scalability, reliability, performance with best-in-class TCO leveraging Oracle hard partitioning

All Oracle-on-Power offerings:

Oracle Database

PeopleSoft

Oracle RAC

Siebel

GoldenGate

Oracle Retail

E-Business Suite

FLEXCUBE

JD Edwards World and EnterpriseOne

... CC&B, BRM, MDM, Commerce, OEM, et al.

PowerVS Flexible Deployment Model

VM based

- Dedicated Cores
- Shared Capped LPAR
- Shared Uncapped LPAR

Core-to-vCPU ratio of 1:1

Shared Processor Pool

- Reserved capacity at single core granularities with no oversubscription of capacity across SPPs
- Pool-based deployment and resource control for simpler workload management

Up to 3 VPs for any EC≤3 (Power10 only) *New*
Up to 2 VPs for any EC≤2 (POWER9)
Core-to-vCPU ratio of 1:1 when EC>3

Dedicated Host

- Exclusive use (all cores and memory available for use)
- Same flexibility as on-premise Power deployments
- Multiple shared processor pools for SW Licensing capping

Core-to-vCPU ratio of 1:20

Use Cases

- Test / Dev environments
- 1st production environments
- Bare-metal x86 servers / x86 VM Hyperscaler migration

- Cost Optimized Disaster Recovery As a Service
- Reduced Oracle S/W licensing costs by optimizing & limiting processor core usage
- Oracle Database Consolidation Starter & Manual scaling

- Lift and Shift from Power on-prem (P8 EOS, Datacenter Exit, ...)
- Large Oracle database consolidation (thx to CPU Sharing) from x86, Power, Exadata, SPARC, and Cloud
- Co-locate workloads (Oracle, OpenShift, LoP, IBM i, Applications, Database Alternatives ...)

Consistent with Oracle's current hard partitioning guidelines, as long as LPM is not used with those LPARs running

Oracle SW: <https://www.oracle.com/assets/partitioning-070609.pdf>

Shared Processor Pools – License Optimization

- Many software providers charge based on the number of processors
- Reduce license cost by only licensing the cores configured in the pool
- Leverage EC:VP ratio on Power10 for increased virtual processor capacity for virtual servers



Oracle on Power – Lizenzierung Standard Edition 2 (SE2)

Grundprinzip Standard Edition 2

- Standard-Edition wird “Pro Sockel” lizenziert
 - Aktuell wird von Oracle nur noch SE2 unterstützt
- Eine Lizenz pro Sockel, maximal 2 Sockel pro Maschine
- Dual / Multi-Chip-Module zählen als 2 oder mehr Sockel
 - Dieses Problem betrifft alle Architekturen, auch die leistungsstarken x86-Prozessoren von AMD + Intel
- Somit bei Power10 Systemen nur S1014 eligibel für SE2
 - Inkl. speziellem “Oracle Standard Edition” Power Server S1014 mit 24 Cores
- POWER9 Systeme: S922 = Single Chip Module, 2 Sockets, daher 2x SE2 Lizenz erforderlich
 - Keine Subcapacity Lizenzierung bei SE2 (auch wenn nur 1 Core für Oracle genutzt wird!)
 - Achtung: Bei mehreren LPARs darauf achten, dass diese auf demselben System installiert werden (wenn sinnvoll), da für jedes physische System 2x SE2 Lizenz erforderlich ist!

Oracle on Power – Lizenzierung – Enterprise Edition (EE)

Grundprinzip Enterprise Edition

- Alle den Oracle-LPARs zugewiesenen Cores (Anzahl Virtuelle Prozessoren bei “uncapped LPARs”) müssen lizenziert werden
- Eine Lizenz pro Core
- Oracle-LPARs können einem Shared Processor Pool (SPP) zugewiesen werden
 - Höchstgrenze der zu lizenzierenden Cores ist die Größe des SPP (Subcapacity Lizenzierung)
- Auf einem System können mehrere SPPs definiert werden

Oracle on Power – Lizenzkosten-Betrachtung Standard Edition SE2

- Basierend auf offiziellen Listenpreisen:
<https://www.oracle.com/a/ocom/docs/corporate/pricing/technology-price-list-070617.pdf>
- 1x S1014 mit 24 Cores (1 Dual Chip Module, 2 Sockel, SMT-8 = 192 logische Prozessoren (aus Oracle-Sicht = CPU_COUNT)
 - Lizenzkosten (SE2, 3 Jahre): $2 \times \$17.500 + 3 \times (2 \times \$3.850 \text{ Update \& Support}) = \58.100
 - Lizenzkosten (EE, 3 Jahre): $24 \times \$47.500 + 3 \times (24 \times \$10.450 \text{ Update \& Support}) = \$1.892.40$
- Power Virtual Server:
 - S922 – egal wie viele Cores = identisch wie S1014 da SE2 eligibel, \$58.100 für 3 Jahre
 - S1022, E980, E1080 – Lizenzierung pro Core da DCM → EE
 - S1022: SW Lizenzen bereits ab 1 Core für 3 Jahre teurer, da EE erforderlich

Section I		Oracle Database		Prices in USA (Dollar)	
Database Products		Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Oracle Database		350	77.00	17,500	3,850.00
Standard Edition 2		950	209.00	47,500	10,450.00
Enterprise Edition					

Oracle SW licensing cost optimization example



Without SPP

VM1	VM2	VM3	VM4	VM5
Capped	Capped	Capped	Capped	Capped
AIX 7.3	AIX 7.3	AIX 7.3	AIX 7.2	AIX 7.3
Oracle DB	Oracle DB	Oracle DB	Oracle DB	Oracle DB
VP = 6	VP = 2	VP = 1	VP = 1	VP = 2

Provision 5 VMs with 12 fixed cores = 12 Oracle licenses required

Oracle Licensing Optimization Benefits

- Enable hybrid cloud environment to run off-premise Oracle workloads
- Reduce the number of SW licenses by putting a limit on the number of processors an uncapped partition can use
- **Meets Oracle's support and hard partitioning requirements**
- Fully certified stack w/ PowerVM, AIX, IBM i, SAN-based storage, network adapters
- Full support for Oracle database, RAC, Fusion middleware, applications
- Option to add and license only 1 incremental core at a time to a SPP

	Oracle License w/ SPP	Without SPP	License Saving
SPP #1: Oracle DB cores to license	9	12	3

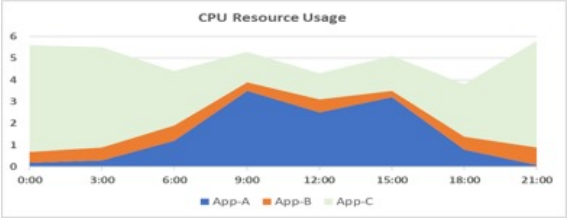
With SPP

VM1	VM2	VM3	VM4	VM5
Uncapped	Uncapped	Uncapped	Uncapped	Uncapped
AIX 7.3	AIX 7.3	AIX 7.3	AIX 7.2	AIX 7.3
Oracle DB	Oracle DB	Oracle DB	Oracle DB	Oracle DB
Ent. = 5.25 VP = 6	Ent. = 1.25 VP = 2,3	Ent. = 0.25 VP = 1,2,3	Ent. = 0.75 VP = 1,2,3	Ent. = 1.5 VP = 2,3

SPP

Reserved: 9 capped cores

- Create Shared Process Pool with 9 capped cores
- Provision 5 VMs with 9 cores entitled capacity
- 12 virtual processors with 1:1 EC:VP (S922)
- 18 virtual processors with 1:3 EC:VP (up to 50% savings)
- 9 Oracle licenses required



Oracle Production Example (S1022)

AIX

S1022 without SPP								
	Cores/EC	VP	Type	Mem	OS	Total	Oracle Licenses	% change
VM1	6.00		C	64	AIX	\$1,768.78	6	
VM2	2.00		C	48	AIX	\$856.28	2	
VM3	1.00		C	32	AIX	\$508.15	1	
VM4	1.00		C	32	AIX	\$508.15	1	
VM5	2.00		C	48	AIX	\$856.28	2	
Total PVS	12.00	0		224		\$4,497.65	12	
					with Discount	\$2,473.71	\$5,225.00	
					Total		\$7,698.71	

As-is without SPP

- 12 cores used
- 12 Oracle licenses needed

S1022 with SPP (current pricing)								
	Cores/EC	VP	Type	Mem	OS	Total	Oracle Licenses	% change
Pool	9		C	0	BYOL	\$1,432.24	9	
VM1	5.25	6	S	64	AIX	\$1,349.04		
VM2	1.25	2	S	48	AIX	\$648.85		
VM3	0.25	1	S	32	AIX	\$433.80		
VM4	0.75	1	S	32	AIX	\$421.31		
VM5	1.5	2	S	48	AIX	\$682.61		
Total PVS	9.00	12		224		\$4,967.86		
					with Discount	\$2,732.32	\$3,918.75	10%
					Total		\$6,651.07	

As-is with SPP (without optimizations)

- 9 cores used and licensed for Oracle
- VM price is 10% higher than without SPP
- 33% Oracle license savings (9 cores licensed)

with SPP and core and memory metering optimization								
	Cores/EC	VP	Type	Mem	OS	Total	Oracle Licenses	% change
Pool	9		SPP	0	BYOL	\$1,432.24	9	
VM1	5.25	6	SPC	64	AIX	\$792.21		
VM2	1.25	2	SPC	48	AIX	\$516.27		
VM3	0.25	1	SPC	32	AIX	\$327.26		
VM4	0.75	1	SPC	32	AIX	\$341.77		
VM5	1.5	2	SPC	48	AIX	\$523.52		
Total PVS	9.00	12		224		\$3,933.27		
					with Discount	\$2,163.30	\$3,918.75	-13%
					Total		\$6,082.05	

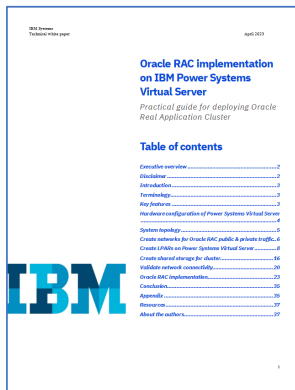
SPP = Shared Processor Pool SPC = Shared Processor Core

NEW – with SPP pricing optimizations

- 13% improvement on PowerVS pricing
- 33% Oracle license savings (9 cores licensed for 12 VPs)
- Up to 50% Oracle license savings with 1:3 EC:VP ratio (9 cores licensed for 18 VPs)

Oracle Database on IBM PowerVS Collaterals

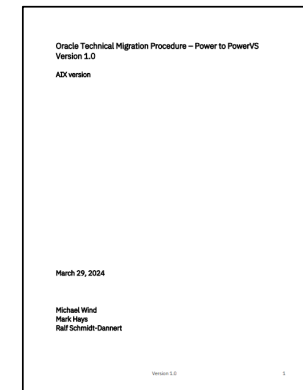
Oracle RAC, Dataguard, Migration ... Implementation Guidance & Experience Feedback



[Whitepaper Oracle RAC implementation on IBM Power Systems Virtual Server](#)



[Oracle Disaster Recovery on IBM Power Virtual Server](#)



[Oracle Technical Migration Procedure – Power to PowerVS](#)

- [Oracle on Power Seismic Startseite](#)
- [Präsentation Oracle and Oracle RAC on Power Virtual Server \(Oktober 2024\)](#)
- [July 31 - Oracle on IBM PowerVS Spotlight - IBM Power Virtual Server Aufzeichnung und Präsentation](#)
- [IBM Power vs Exadata and Oracle Cloud - Client Deck - 2025.Feb](#)