

**Processor Value Unit Announcement for IBM System z10
Questions & Answers
March 7, 2008**

Q1: How many Processor Value Unit (PVU) software licenses are required for each engine on System z10?

A: 120 PVU licenses are required for each System z10 Integrated Facility for Linux (IFL) or CP engine (processor core).

Q2: Is there a formal external letter announcing the 120 PVU requirement?

A: Yes, a formal announcement letter was released on March 4, 2008. Here are the letter numbers for each geography:

[US: 208-048](#)

[Canada: A08-0363](#)

[Europe: ZA08-0126](#)

[AP: AP08-0048](#)

Q3: Has the PVU table been updated and where can I find it?

A: Yes. The table can be found externally at:

http://www-306.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html

Q4: Is this a price increase?

A: No. See question 5 for details.

Q5: Why does System z10 require more PVU licenses than previous System z technology?

A: System z10 engine performance is significantly greater than previous generations, enabling customers to realize significantly higher value over previous technology. In other words, fewer System z10 engines will typically be required to run the same workload that predecessor technology can run. This concept is commonly termed “price performance improvement” or “decreasing price per unit of throughput”. The bottom line is that customers can expect to get more for their software dollar on System z10 technology.

Processor Value Unit Licensing for Select IBM Middleware
Questions & Answers

Q6: If a customer migrates their IBM Middleware from the same number of predecessor engines (e.g. z9, z990) to System z10, are more PVU entitlements required?

A: Additional PVU licenses may need to be acquired. For example, let's assume a customer is migrating from an 8-way z9 server to an 8-way z10:

	Processor Type	Number of IFL Engines (cores)	PVUs required for each IFL Engine	Total PVUs required
From:	z9	8	100	800
To:	z10	8	120	960

In this example, the customer will need to have available (or obtain) an additional 160 PVU licenses. But remember that the customer can now expect to run significantly more workload.

Q7: How does IBM assign Processor Value Units for new technology?

A: As we place new processor technologies in the Processor Value Unit structure, IBM's key objective is to continue to deliver software price performance improvements when customers adopt these new technologies. When assigning Processor Value Units, we will also assess relative processor performance using a number of different industry standard benchmarks. These benchmarks may include both transaction processing (e.g. TPC-C) and processor based (e.g. SPECint and SPECjbb) standard benchmarks. Market conditions and the desire to maintain a simple structure will also be factors influencing the assignment of Processor Value Units.

Q8: Why did IBM move to Processor Value Units?

A: IBM's Processor Value Unit structure enables relative simplicity in software licensing in response to rapidly evolving hardware and multi-core chip technologies. Processor Value Unit licensing provides increased flexibility and licensing granularity, while eliminating the management difficulties presented by fractional per processor licensing.

Q9: Can customers acquire new middleware licenses using the previous per processor licensing model instead of using PVUs?

A: Per processor licensing is no longer offered with most middleware programs.

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Questions & Answers

Q10: What is the status of my license entitlements previously acquired through Passport Advantage under the per processor model?

A: IBM has two types of program entitlements in Passport Advantage:

1) Software Subscription & Support (S&S) entitlements:

Software S&S entitlements are automatically converted using a ratio of 1 per processor license equals 100 PVU licenses upon annual S&S renewal.

Passport Advantage account records for software S&S entitlements have been converted to PVUs.

2) License entitlements:

Previously acquired per processor license entitlements were not automatically converted to PVUs, but can be used on an “as if converted” basis using a ratio of 1 per processor license equals 100 PVUs licenses

Q11: How many previously acquired per processor licenses are required for software on System z10?

A: Each IFL or CP engine (processor core) for System z10 servers requires 120 PVU licenses. Customers can use their previously acquired per processor licenses on an “as if converted” to PVU basis, using a ratio of 1 per processor license equals 100 PVUs licenses. Thus, 1.20 per processor license entitlements would be required for each System z10 engine. For example, if a customer has 12 previously acquired per processor licenses of DB2 (equivalent to 1,200 PVUs), they can use them to deploy DB2 on 10 System z10 engines. An illustration of this example follows:

Processor Type	Previously acquired per processor licenses	Equivalent “as if converted” PVU licenses	Divide previously acquired PVU equivalents by PVUs required per engine	Number of engines on which DB2 can be deployed
z10	12	1,200	Divide by 120	10

Processor license requirement calculations ending in fractions must be rounded up to the nearest whole number of processor licenses. For example, 2 System z10 processor cores, each needing 1.2 processor licenses per core, yield a requirement for 2.4 processor licenses, which rounds up to 3 processor licenses required for that configuration.

Q12: How many PVUs or previously acquired per processor licenses are required for software on other platforms?

A:

Processor Type	Number of Cores or Engines per chip	Licenses Required Per Processor Core or Engine	
		PVUs	Previously acquired per processor
System z10	4	120	1.20
z9, z990, z890, S/390	1-2	100	1.00
POWER6 dual-core	2	120	1.20
POWER5 dual-core	2	100	1.00
Other RISC and Itanium dual-core	2	100	1.00
PowerPC 970 dual-core	2	50	0.50
x86 dual-core	2	50	0.50
x86 quad-core	4	50	0.50
POWER5 quad-core module	4	50	0.50
UltraSPARC T2 octi-core	8	50	0.50
UltraSPARC T1 octi-core	8	30	0.30

Q13: Does IBM continue to define an “engine” or “processor” to be the processor core?

A: Yes. IBM has consistently defined an “engine” or “processor” to be the processor core. Customers are required to acquire software licenses for all activated processor cores available for use on the server. With Processor Value Unit (PVU) licensing, customers are required to acquire PVU licenses based on the number and type of processor cores.

Q14: Because System z10 is based on quad-core technology, do I need to multiply the number of IFL engines by 4 to determine the PVU license requirement?

A: Processors are defined as cores (one IFL or CP engine) on System z10, so for PVU licensing the number of processors identified on the hardware is the same number of processors to be used for software licensing. For instance, if a System z10 server has five processors, the number of PVUs required would be five processor cores times 120 PVUs (5 x 120 = 600 PVUs).

Q15: What is the difference between an “engine” and “processor”?

A: IBM defines an IFL or CP “engine” to be the processor core. In System z vernacular, processor cores are typically referred to as IFL or CP “engines,” whereas on other platforms (e.g. UNIX, Windows) they are typically referred to as “processor cores.” For purposes of licensing IBM software on System z, “engines” and “processors” are synonymous and both refer to the processor core. Therefore, in both cases, customers are required to acquire software licenses for all activated processor cores available for use on the server, based on the number and type of processor cores.

Processor Value Unit Licensing for Select IBM Middleware
Questions & Answers

Q16: Is System z10 eligible for sub-capacity licensing?

A: The sub-capacity licensing terms applicable for z9 or previous systems using eligible virtualization technologies will also be applicable to System z10. For more information please refer to the sub-capacity website:
<http://www-306.ibm.com/software/lotus/passportadvantage/subcaplicensing.html>

Q17: Where can I find additional information regarding PVU licensing?

A: Below are some links to helpful information regarding PVU licensing:

PVU Table & Introduction Page:

http://www-306.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html

PVU Calculator:

<https://www-112.ibm.com/software/howtobuy/passportadvantage/valueunitcalculator/vucalc.wss>

PVU Resources for IBM Customers:

http://www-306.ibm.com/software/lotus/passportadvantage/pvu_customer_resources.html