EPV Technologies

Newsletter

October 2023

THIS MONTH HIGHLIGHTS

- Performance enhancements in z/OS 3.1 – Part 1
- IBM z Integrated Information Processor Exploiter (zIIP) List

Performance enhancements in z/OS 3.1 – Part 1

After 10 years from the announcement of z/OS 2.1, IBM released a new z/OS version: z/OS 3.1, available from 29th September 2023.

This new version of z/OS continues to evolve towards cloud computing, pushing on the possibility of co-locating Linux based applications together with

z/OS core workloads, by exploiting zCX containers.
It also provides the most advanced quantum-safe technologies, making z/OS 3.1 the most secure platform for the industry's most critical workloads.

However, according to IBM, the most relevant characteristic of z/OS 3.1 is that:
"IBM z/OS 3.1 marks a new era in operating system intelligence. The new version of z/OS provides a framework for infusing AI throughout the system, enabling intelligent systems administration guidance and automation that learns and improves."

Of course, there are a lot of other important enhancements introduced.
In this paper we will focus only on what seems most interesting to us from the point of view of performance analysis:

- System Recovery Boost
- Implicit long term CPU protection
- AI-Powered WLM
- CPENABLE
- Dedicated memory.

If you want to receive the paper you can reply to this e-mail writing "**Performance enhancements in z/OS 3.1 – Part 1**" in the subject

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IBM z Integrated Information Processor Exploiter (zIIP) List

This is a compilation of the known IBM software offerings that can exploit IBM zIIPs as of this time of writing and may not be totally inclusive.

Download it at:
https://www.ibm.com/downloads/cas/6VYXGE34

We are analyzing consumptions of a batch job. If we look at its job log, we find a total TCB time of 0,10 CPU seconds (TCB time was 0,08 CPU seconds, and the SRB time was 0,02 CPU seconds). If we look at EPV data, we find 5,89 CPU seconds. How can you explain this?

EPV Technical Support answer

TCB and SRB time measurements in the job log are not in seconds but in this format: minutes.hundredths-of-a-minute.

So, 0,10 means 0 minutes plus 10% of a minute which, rounded, gives 6 CPU seconds.

BUFNO

When working with sequential datasets, multiple buffering may greatly improve performance.
It allows to read blocks into memory buffers before they are needed, eliminating the delay caused by waiting for I/O to complete.

To specify multiple buffering, you can code either the NCP=xx or BUFNO=yy subparameter of the DCB parameter on the JCL DD statement or at allocation. Which parameter to use depends on the access method used.
You should set NCP for BSAM and BUFNO for QSAM.
Allowed values for the number of buffers are from from 2 to 99 for NCP and from 2 to 255 for BUFNO.
Please note that multiple buffering with BSAM require proper application coding.

We made a test with five jobs using QSAM to copy a sequential dataset starting from no BUFNO and then increasing the number of buffers to 10, 20, 50 and 100.

We run the test more times. These are the results:

	EXCP (K)	ELAPSED SECONDS	ELAPSED REDUCTION
JOB1 (no BUFNO)	1413	320	
JOB2 (BUFNO=10)	1413	189	41%
JOB3 (BUFNO=20)	1413	154	52%
JOB4 (BUFNO=50)	1413	135	58%
JOB5 (BUFNO=100)	1413	126	61%

To use BUFNO you need to use more real storage because all the buffers need to be page fixed during the I/O operations. Some slight increase of CPU time, normally negligible, due to buffer management has also to be expected.

Remember that DFSORT does its own buffering (using above or below 16M virtual storage
as appropriate) so coding DCB=BUFNO will not have any affect.

Quotes

“Don't forget: I'm also just a girl, standing in front of a boy, asking him to love her."

Notting Hill

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