FREQUENTLY ASKED QUESTIONS

CA Datacom®/DB Version 14.0 and enhanced zIIP exploitation

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Q. What is zIIP?

A. zIIP (IBM System z Integrated Information Processor) is a specialty mainframe processor designed to help free up general computing capacity. By exploiting zIIP, CA Technologies can help you deliver more computing capacity and throughput without additional system hardware resources. CA Technologies support for zIIP can help you lower your TCO (total cost of ownership) on the mainframe.

Q. How is CA Datacom exploiting the zIIP processor?

A. CA Datacom/DB Version 14.0 for z/OS® expands on its significant use of the zIIP engine, which IBM originally introduced to handle specific types of processing workloads. CA Datacom/DB Version 14.0 enables you to direct a much broader set of functions to the zIIP. In fact, portions of all typical CA Datacom Multi-User Facility (MUF) production workloads—including those generated by online transaction systems, batch processing jobs and distributed platform requests—can exploit zIIP capacity to offload processing that would otherwise occur in the CA Datacom/DB central processor address space.

Because significant portions of CA Datacom/DB Version 14.0 workloads can run on zIIPs, you can better leverage zIIP capacity to scale your database environments without incurring expensive hardware upgrades. This is in marked contrast to DBMS solutions from other vendors that either limit the types of workloads that can be offloaded—or that fail to utilize zIIP together.

Q. Is the CA Datacom/DB zIIP feature an extra-cost option?

A. No. zIIP support is included with CA Datacom/DB Version 14.0 at no additional cost. It's like a capacity dividend!

Q. What workloads can I expect to run on the zIIP? Will certain types of workloads benefit more than others?

A. All database requests serviced by CA Datacom/DB Multi-User Facility (MUF) can take advantage of the zIIP. There are no restrictions on the type of CA Datacom/DB MUF work that is zIIP-eligible.

CA Datacom® Presspack is a runtime compression package that can also take advantage of zIIP offloading because most of its work can be done by SRBs to manage its decompression and compression routines.

Q. Is the workload executing in the batch DBUTLTY (CA Datacom system utility) region zIIP-eligible?

A. That depends. Currently, only the workloads executing in the Multi-User Facility region are zIIP-eligible. However, when a DBUTLTY function is executed in "Multi-User Facility mode," then that workload is shipped over to the Multi-User Facility region and they become zIIP-eligible. zIIP-eligible DBUTLTY functions include key system tasks such as online data reorganization and online index defragmentation.

Q. Can the zIIP processor manage the same type of work as the general purpose processor?

A. No. The zIIP processor cannot manage physical I/O processing and user-written exit processing because SRBs cannot issue a Supervisor Call (SVC). Because of this SRB restriction, each CA Datacom/DB SMP task running in SRB mode is paired with a TCB subtask that is used to perform the functions that cannot be done in SRB mode.

Q. How do I activate the zIIP processing feature in CA Datacom/DB?

A. To run on a zIIP engine, you must run tasks in SRB mode rather than TCB mode. The zIIP feature is activated by simply adjusting the settings on the Multi-User startup option called *SMPTASK*. For details, refer to the *CA Datacom Version 14.0 Database and System Administration Guide*.

Q. How can I tell if my environment will receive benefits, and to what extent, from the zIIP processor?

A. Even when no physical zIIP processor is available in your environment, you can estimate the potential zIIP offload benefit by specifying *"SRB"* on the Multi-User startup option SMPTASK and reviewing system statistics in the Dynamic System Table *MUF_SRB_ZIIP* or the Multi-User Facility EOJ report. Refer to the *CA Datacom Version 14.0 Database and System Administration Guide* which has a discussion on this benefit analysis.

High I/O applications will have less zIIP-enabled work since SRBs cannot do I/Os. Application systems with high buffer re-use or high Memory Resident Data Facility (MRDF) usage will have more zIIP-enabled work.

During a recent CA Datacom community presentation, a CA Datacom Version 14.0 site with the enhanced zIIP support (see information PTF RI64321) reported zIIP offload rates **exceeding 90%** of the total CA Datacom Multi-User Facility CPU workload.

Your actual benefit may vary depending on your mix of CA Datacom work—online, batch, CICS, CA Ideal, COBOL, distributed web apps, JDBC, ODBC, and so on. We encourage you to install CA Datacom/DB Version 14.0 with the enhanced zIIP support PTF and test it in your environment to determine the zIIP offload benefit. We are very interested in any testing results you can share with us as we move forward with this innovative feature.

Q. Is there any performance overhead associated with deploying a zIIP processor?

A. Yes. With the introduction of any additional processor in a multiprocessor environment, there is some overhead, such as additional code checks that enable exploitation of the added processor. When running with the zIIP feature activated, however, we believe that the cost of the communication between the general purpose (GP) processor and the zIIP will be significantly outweighed by the business value derived from receiving additional GP capacity.

Q. Does this feature improve CA Datacom/DB performance?

A. Customer tests have not revealed measurable performance gains when the zIIP is deployed in a CA Datacom/DB environment. When an additional processor (in this case a zIIP) is added to a multi-processor environment, there is an "MP effect" which slightly diminishes the CPU capacity of the other processors. Taking this into consideration, we don't expect that performance will improve when zIIP is enabled. However, the expected result of offloading GP processing cycles to the zIIP would have the same type of benefit as improved performance—that is—this new feature enables you to run the same workload for less GP CPU cycles which could allow your site to delay new processor upgrades due to the increased GP processor availability. Add to that, the fact that each new workload item added to the environment runs at this smaller GP CPU footprint.

Q. If my site has both CA Datacom/DB and DB2, which DBMS will have priority for zIIP offload support?

A. zIIP processor usage is controlled by IBM's Workload Manager (WLM) and is subject to WLM priority level settings established by your IT operations staff.

Q. Can I control the amount of CA Datacom work offloaded to the zIIP processor?

A. You can control the percentage of CA Datacom zIIP-eligible work offloaded to the zIIP by setting 0-100 value on the new Multi-User startup option *ZIIP_USER_LIMIT.* This provides another method to manage zIIP resources in an environment that has multiple products with zIIP-eligible workloads.

Q. If I am on a previous release, do I need to upgrade to CA Datacom/DB Version 14.0 to exploit the zIIP processing feature?

A. No. CA Datacom/DB 12.0 is the first release in which zIIP utilization is available. However, the largest zIIP benefit comes with CA Datacom/DB Version 14.0 with enhanced zIIP support (see information PTF RI64321).

Q. Where can I find more information on the zIIP processor feature for CA Datacom?

A. CA Datacom zIIP implementation details are provided in the CA Datacom Version 14.0 Database and System Administration Guide.
The recent webcast "Expanded and Enhancing CA Datacom 14.0 – Enhanced zIIP Exploitation" is available on the CA Datacom public bookshelf at:

https://supportcontent.ca.com/cadocs/0/CA%20Datacom%20V14%200-ENU/Bookshelf.html