# Cheat Sheet

## 1. IPSec and zIIPs for z/OS

* An enhancement to the z/OS Communications Server is planned to allow IPSec processing to take advantage of IBM System z9 Integrated Information Processors (zIIPs). In effect, the zIIP could be used as a high-speed encryption engine that is designed to provide better price performance for eligible IPSec workload.
  - IPSec is an open networking standard used to create highly secure connections between two points in an enterprise… this may be server-to-server, or server to network device, as long as they support the IPSec standard.
  - End-to-end encryption is deployed to provide a highly secure exchange of network traffic. This capability is planned to be available next month (August 2007) with z/OS V1.8 and PTFs and native in z/OS V1.9, when available.
* The IPSec support was included in z/OS Communication Server in z/OS V1.7, and is designed to provide authentication, integrity, and data privacy from z/OS to other network endpoints that support IPSec.
  - In addition to allowing you to run host-based IPSec for security-rich end-to-end network flows, the V1.7 IPSec added IP filtering to help protect your host.
  - Since the IPSec support is implemented in the IP protocol layer, it can be used for a variety of network traffic types to/from any application without any anticipated change to that application.
* The new zIIP Assisted IPSec function is designed to move most of the IPSec processing from general-purpose processors to the zIIPs. In addition to performing eligible encryption processing, the zIIP will also handle cryptographic validation of message integrity, and IPSec header processing. This is designed will allow customers to take advantage of the cost saving benefits of the zIIP when implementing IPSec securing valuable business transactions and bulk data movement and to protect the host.
* The z/OS Communication Server (z/OS CS) is designed to interact with z/OS' WLM to have all of its enclave Service Request Block (SRB) work made eligible to run on zIIP.

## 2. z/OS XML to be enabled for both zAAP and zIIP specialty engines

* In z/OS V1.8, IBM introduced a new element of z/OS, z/OS XML System Services.
  - z/OS XML is a system-level XML parser integrated with the base z/OS operating system and designed to deliver an optimized set of services for parsing XML documents (z/OS XML has also been made available on z/OS V1.7).
  - The initial benefits of this system component is middleware and applications requiring high-performance non-validating XML parsing.
  - z/OS XML may currently be accessed by an Assembler programming interface and one of the first exploiters, DB2v9 for z/OS uses this Assembler interface for XML native support.
  - IBM plans to add C/C++ support for z/OS XML with z/OS V1.9.
* IBM is announcing its intent to enable the z/OS XML component to take advantage of zAAPs.
  - This future enhancement means that middleware and applications requesting z/OS XML System Services (i.e. DB2 processing with local connection) will have the capability for z/OS XML System Services processing to execute on zAAP.
  - z/OS XML System Services parsing executing in 'TCB' mode will be redirected to zAAP.

Note: TCB and SRB are different types of dispatchable units of work on z/OS.

* In addition, IBM is announcing its intent to enable the z/OS **XML component** to fully take advantage of zIIPs.
  - With respect to DB2, z/OS XML processing may be partially directed to zIIPs when utilized as part of a distributed request (like DB2 DRDA).
  - The future enhancement is planned to further benefit eligible work by directing the full amount of the z/OS XML System Services processing to zIIPs when it is utilized as part of any zIIP eligible workload (like DRDA).
  - Specifically, z/OS XML System Services parsing that is executed in SRB mode from zIIP-eligible enclaves is planned to be redirected to the zIIP.
* IBM intention is to extend and expand on the use of z/OS XML System Services enabled for zAAP specialty processors as the basis for additional future enhancement
  - IBM intends to enhance the XML Toolkit for z/OS so that eligible workloads may exploit the z/OS XML component extending zAAP exploitation to the XML Toolkit for z/OS.
  - IBM intends to add validating parsing to the z/OS XML component and this broadens zAAP exploitation for XML validating parsing as well.

## 3. z/VM V5.3 support for zIIPs and zAAPs.

* z/VM V5.3 will provide simulation and virtualization support for the System z9 zIIP and the System z zAAP specialty engines for test and production guest support for workloads utilizing these engines.
  - This new support is designed to help clients extend the business value of the mainframe virtualization technology for existing and new workloads.
  - Guest support is provided for virtual CPU types of zAAP and zIIP
* In addition to general-purpose CPs (Central Processors) a z/VM user can issue the DEFINE CPU command to define these types of virtual CPUs.
  - The system administrator can issue the new SET CPUAFFINITY command to specify whether z/VM should dispatch a user's specialty CPUs on real CPUs that match their types (if available) or simulate them by dispatching them on real CPs.
  - The CPU directory control statement has been updated for this support.
  - The accounting records for Virtual Machine Resource Usage (Record Type 1) and for CPU Capability (Record Type D) have been updated for this support.
  - In addition, QUERY CPUAFFINITY has also been updated

NOTE: z/VM simulates specialty processors using real CPs if the underlying hardware is capable of supporting the real specialty processor,

Generally - zAAPs and zIIPs are designed to help free-up general computing capacity and lower total cost of operation for select new workloads such as Java, business intelligence (BI), ERP, and CRM on the mainframe.
IBM does not impose software charges on zAAP and zIIP capacity.