z17 Capacity Planning - Part 1

Fabio Massimo Ottaviani
EPV Technologies

May 2025

1   Introduction

On April 8th IBM announced its new generation of the mainframe. The new system is called IBM z17 while the family model is 9175.

Experienced capacity planners know that every new generation of machines provides a major challenge to their skills. They also know that their best friends are the IBM LSPR benchmarks, the IBM zPCR tool, the Measurement Facility counters provided in SMF 113 and an up-to-date performance database.

Even if the z17 processor cache architecture is similar to z16, there are significant changes and new components that must be carefully analyzed.

In the first part of this paper, we will have a look at the most important capacity characteristics of the IBM z17.
Starting from the IBM LSPR benchmarks, we will then estimate the MIPS capacity of each IBM z17 processor model.
Finally, we will compare z17 single CP capacity and workload variability with previous machine generations.

In the second part we will compare z16 and z17 processor cache architecture. Then we will analyse in more detail the new z17 Measurement Facility basic and extended counters provided in SMF 113, using them to calculate the most important indexes to use in performance analysis and capacity planning.