**At a glance**
- HiperSockets provide for memory communication across logical processors.
- Up to 50% system capacity performance improvement over z196 80-way.
- At a glance - Up to 50% system capacity performance improvement over z196 80-way.
- In cache, IBM has expanded Level 2 cache by 33%, and has doubled the cache in Levels 3 and 4 from 24 MB to 48 MB, and from 192MB to 384MB respectively. [Cache serves data to the processor]

**Next generation in processing**
- IBM has introduced Flash Express (a new tier of solid state disk-based memory that absorbs processing load as a reaction to system transition from one mode of operations such as batch processing to another mode such as interactive processing).
- Flash Express is uniquely designed to automatically strengthen availability and performance, even during periods that stress your system paging, such as during collection of system diagnostics, start of day processing, or other intermittent periods.

**New generational"standby," IBM has introduced the new Crypto Express 4S, which is a 32-bit microprocessor that offers second generation out-of-order design.
- The ZEC12 card is intended to provide high-speed secure electronic cryptographic operations for data encryption and digital signing, and secure management and use of cryptographic keys.
- With the ZEC12, IBM zEnterprise EC12 can support a multi-platform environment having mainframe, UNIX®, and x86 technologies in a single system.
- The ZEC12 can also support the IBM WebSphere DataPower Integration Appliance X105 for zEnterprise which can be used to help simplify, govern, and integrate XML and IT services by providing connectivity, gateway functions, data transformation, protocol bridging, and intelligent load distribution. Unified Resource Manager integrates System z governance to the distributed side, transforming the way resources are managed and deployed. It provides infrastructure awareness to manage resources consistent with the policies assigned to that particular workload.
- IBM zEC12 is designed with an environmental focus to help improve data center efficiency. It has a new radiator-based air-cooled design that reduces cooling requirements, and improves cooling efficiency. Enhanced energy recovery data centers, IBM zEnterprise EC12 offers a non-raised floor option with overhead power and I/O cabling. For greener data centers, IBM zEC12 offers hot water cooling and High Voltage DC power which allow a bold step into the future of cooler computing without changing the footprint.

**Solid State Drive**
- The first four models (H20, H43, H66, and H89) have 27 PUs per book, and the high Capacity model (the HA1) has four subcapacity levels for the first 20 processors, giving up to 50% more system capacity than the z196 Model M80, available on previous System z systems.
- The ZEC12 expands the scalability by offering the first five 160 capacity processors, giving a total of 161 distinct capacity processors, in the system, and providing a range of over 1,320 in processing power. The ZEC12 delivers scalability and granularity to meet the needs of medium-sized enterprises, while also satisfying the performance requirements of the larger systems.
- The ZEC12 continues to offer all the specially enabled services available on previous System z systems.

**Performance Chart**
- Each book contains a Multi-Chip Module (MCM) which contains the redesigned CMOS 1313 processor units, storage control units, and configuration units for all models. (H20, H43, H66, and H89) have 27 PUs each, and the HA1 has four 384 PUs. Model HA1 is estimated to provide up to 50% more system capacity than the z196 Model M80.

**Blades**
- Some of the more compelling reasons for the blades include:
  - IBM WebSphere DataPower Integration Appliance X105 for zEnterprise blades that can plug and play to eight BladeCenter chassis in bulk on the Large Systems Performance Reference (LSPR) mixed workload.
  - Each book contains a Multi-Chip Module (MCM) which contains the redesigned CMOS 1313 processor units, storage control units, and configuration units for all models. (H20, H43, H66, and H89) have 27 PUs each, and the HA1 has four 384 PUs. Model HA1 is estimated to provide up to 50% more system capacity than the z196 Model M80.
  - The ZEC12 provides improvements to the PR/SM HiperDispatch function: HiperDispatch provides improved work load alignment, and IBM has now enhanced the microprocessors when they are in use and are aligned for improved work load.
  - The ZEC12 provides the definition of up to 32 Hypersockets, which provide for memory communication across logical partitions, without the need of any I/O adapters, with VLAN capability.

**Note:** Blades are designed to help simplify, govern, and integrate XML and IT services by providing connectivity, gateway functions, data transformation, protocol bridging, and intelligent load distribution. Unified Resource Manager integrates System z governance to the distributed side, transforming the way resources are managed and deployed. It provides infrastructure awareness to manage resources consistent with the policies assigned to that particular workload.

**Matrix**
- The ZEC12 has five model offerings ranging from the entry configuration of the processor units (PUs), through the HA1 configuration of the processor units (PUs), and high Capacity model.

**Flash Express Expansion (FC 0402)**
- Introduces Solid State Drive (SSD) technology and the IBM Flash Express.
- ZEC12 introduces the first high performance, high availability, and scalable Flash Express expansion offering.
- Flash Express is a commodity Flash storage technology that is optimized for high performance and scalability.
- Flash Express is uniquely designed to automatically strengthen availability and performance, even during periods that stress your system paging, such as during collection of system diagnostics, start of day processing, or other intermittent periods.

**IBM zEnterprise EC12**
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**EC12 EC12 Next generation in processing**
- IBM has increased the page frames to 2GB (page frame size is important because larger frames improve.IBM has increased the page frames to 2GB (page frame size is important because larger frames improve. It improves performance and reduces latency when more data is available at once.

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