Machine Type 2171 (A new mainframe generation)

- 5 Models M15, M32, M49, M66 and M80
- Processor Units (PUs) 20 (24 for M680) PUs/core/8k
- Up to 14 SAPs per system, limited as well as the number of processors
- Dependent on the H/W model: Up to 1S.52,49,66 or 80
- PUs core available for characterization
- Central Processors (CPs), Integrated Facility for Linux (IFLs), Internal Coupling Facility (ICFs), System z Application Assist Processors (zAAPs), System z Integrated Information Processor (zIIP), optional - additional System Assist Processors (SAPPs) for I/O Operations.
- 2 spares designated per system
- Sub-capacity available for up to 15 CPs
  - 3 sub-capacity points (See lower left)
- Memory System minimum of 32 GB
- Up to 128 GB per book
- Up to 3 TB for System and up to 1 TB per LPAR
- 32/64/96/112/128 GB increments
- 16 Gb fixed HSA, standard
- I/O Up to 48 I/O Interconnects per System @ 8 Gbps each
- Up to 4 Logical Channel Subsystems (LCSSs) and STP
- Next is System z's 1st CMOS Out Of Order (OOO) core
- OOO yields significant performance benefit for compute intensive apps through reordering instruction execution (see illustration below)
- Latest (younger) instructions can execute ahead of a stalled instruction
- Reordering storage accesses and parallel storage accesses
- OOO maintains good performance growth for "traditional" applications

The integration of System z and distributed technologies into a revolutionary combination using the IBM Blade Center(zBX)

- Runs applications unchanged and supports what you know using logical device integration between Systems z and IBM Blade Center (zBX)
- Workload specific accelerators to deliver significant performance and/or lower cost per transaction
- An ensemble is a collection of up to 2 z196 nodes that are managed collectively by the Unified Resource Manager as a single logical virtualized system
- A z196 node is a CPC with 0 or 1 zBXs
- The zBX may contain from 1 to 4 racks each containing up to 2 blade centers

NOTE: Nodes can all be CPs with or without zBXs. zBXs can be deployed within a single site.

Blade-based fit-for-purpose solutions

POWER7 and z/OS (SDB) IBM Server Blades will be supported

Unified Resource Manager (zHMC)
- Virtual Resource Management and Automation
- Machine Type/Model 2458
- 1 Model with 5 pre-configured Solutions for Basic, Advanced, Optimized, (IOAsO) or Custom (zHMC)
- Racks - up to 4 (C, D, E, and F)
- 4x2 Enterprise (36u height reduction option
- 4x redundant, 2x2, 4x power lines DASS RAC
- Non-acoustic doors as standard
- Acoustic Doors
- Optional Rear Door Heat Exchanger (conditioned water required)

Chassis - Up to 2 per rack

- 8 BladeCenter
- Redundant Power, cooling and management modules
- Network Modules
- I/O Modules

Blades (Maximum 112 in 4 racks)

- IBM Smart Analytic Optimizer Blades (up to 7 to 56)
- POWER7 Application Server Blades (up to 1 to 12)
- Management Firmware
- SE/HMC Hardware management
- Top of Rack (TOR) Switches - 4
  - 1 GE intra node management network (INMN)
  - 10 GBE intra ensemble data network (IEDN)
- Network Module (NM)
  - 1 GBE and 10 GbE modules
  - 8 Gb Fibre Channel (FC) connected to customer supplied disk
- Ensembles related functions:
  - EnterpriseTM Unified Resource Management (zHMC)
  - The HMC will now be authoritative holder of some ensemble-scope configuration not held by any of the Nodes in the ensemble
  - Some configuration actions will be available ONLY from the HMC managing the ensemble, not the SE
  - HMC will have role in monitoring of workload performance

Any V2.11.0 HMC can become either
- The Primary HMC (that controls the ensemble) or an Alternate (back up) HMC
- The Primary HMC can perform all non-HMC functions on CPs that aren't members of the ensemble
- The HMC that performed the "Create Ensemble" wizard becomes the only Primary HMC
- The Primary HMC can also perform all non-ensemble HMC functions, even on CPs that aren't members of the ensemble
- The Alternate HMC is specifically designed when executing the "Create Ensemble" wizard after running the "Manage Alternate Hardware Management Console" task

NOTE: A Primary HMC is the only HMC that can perform ensemble related management tasks (create the server, manage virtual networks, create a dedicated processor)

IBM Smart Analytic Optimizer uses DASD, storage & IBM solution for high performance computing (HPC)

- Data Power Blades – provide deep-content routing and data aggregation (SOD)
- Protocol and message bridging
- Internet Security Services (ISS) appliances
- High-Performance Computing (HPC)

IBM System z196 MCM

- 96mm x 96mm in size
- 5 PU chips per MCM
- Quad core chips: 3 or 4 active cores
- SUP chips: 128 KB D cache/core
- LP1: 64K I /128K D private/core
- L1.5: 3M I+D private/core
- 2 x 24 M = 48 M L2 per book
- 48 M L2 per book
- Power 1800 Watts
- 1 GbE and 10 GbE modules
- 8 Gb Fibre Channel (FC) connected to customer supplied disks
- SC Chip size 21.97 mm x 21.17 mm
- Power 1800 Watts
- 128 GB per book
- 2 or 4 GB of cache

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The zEnterprise z196 is the industry's fastest and most scalable enterprise server.