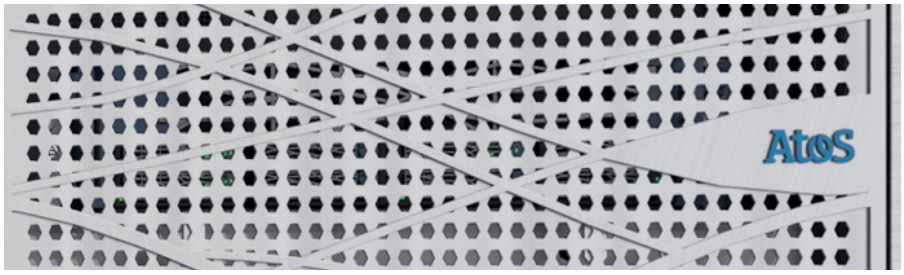
BullSequana X800 E5 series

Technical specifications



Flexibility and scalability for memory-hungry applications

Building on its acknowledged experience in designing Bull SMP systems, Atos introduces an entirely new generation of supernodes, which deliver even more performance for Extreme Computing and data analytics. Featuring an architecture that supports an impressive number of processing cores and an exceptional memory capacity, the BullSequana X800 servers are engineered for high performance and in-memory computing.

Because maximizing production time and minimizing servicing time – without compromising on quality of service – has become a key issue, the BullSequana X800 is not just powerful but also cost-effective and convenient to operate.

At the confluence of HPC and Big Data

The BullSequana X800 servers have been designed specifically to meet in-memory requirements and converge business-critical computing and High Performance Computing. They are ideally suited to support massive in-memory data bases, pre-processing, post-processing, and visualization. They are among the most scalable and modular ultra-high memory servers on the market, start-ing with 2 CPUs and 24 memory DIMMs, and going up to 32 CPUs with 384 memory DIMMs in 16 interconnected boxes - with a **linear performance scaling.**

A powerful and modular range

The BullSequana X800 series consists of five complementary models, assembling 1 to 16 2-socket compute boxes thanks to two types of interconnect:

- A **glueless interconnect** is used for 1, 2 or 4 compute boxes, allowing to form a glue-less configuration with up to 8 sockets.
- For larger configurations, a **UNC** (UPI Node Controller) stacks 8 to 16 boxes. This dis-tinctive Atos technology makes it possible to form 16- or 32-socket servers.

A Connecting Box assembles compute boxes with no apparent cabling, and makes it possible to easily add compute and memory resources. This helps adjust memory and compute resources to applica-tion needs, and facilitates the scaling of Big Data applications. For more agility in configuring, BullSequana X800 servers feature hot plug I/O blades, disks, fans and PSUs.

Key innovative components

Each compute box is a 2U 2-socket rack server and contains:

- up to 24 memory DIMMs, i.e. a total of up to 3 TB per compute module when using 128GB DIMMs – and ready for higher capacities with future memory technology;
- hot plug I/O blades that offer up to 5x PCIe Gen3 slots, with capability for a disk controller in charge of the front-end disks;
- a number of options to customize the system to match application requirements: internal disks, NVMe drives or GPUs.

The performance of leading-edge Intel® Xeon® Scalable processors

The BullSequana X800 embarks Intel® Xeon® processors Scalable family, with a large choice of models for the best fit with your applications in terms of frequency, number of cores, or power consumption.

Designed for operational efficiency and maintainability

The BullSequana X800 focuses on serviceability and operational efficiency. It has all required features for reliability, availability and quality of service:

- redundancy of critical components;
- hot-pluggable critical components - the innovative blade form-factor of I/O modules enables hot-plugging;
- patented mechanics for easy replacement of components: the disks, fans and PSUs can be extracted without rack decabling and without stopping running applications;
- server partitioning;
- internal regulation and alert systems;
- dedicated maintenance processor;
- power-conscious design: with the Gen2 Active/Passive Power supply, energy consumption is reduced by 40%.

intel XEON PLATINUM inside

Atos

Five BullSequana X800 configurations

Glueless series

X802 compute box

- 2 sockets
- Up to 56 cores
- 24 DIMMs, up to 3TB
- Up to 5 PCIe slots

X804 compute box

- 4 sockets
- Up to 112 cores
- 48 DIMMs, up to 6TB
- Up to 10 PCIe slots

X808 compute box

- 8 sockets
- Up to 224 cores
- 96 DIMMS, up to 12TB
- Up to 20 PCIe slots

Extended series with exclusive Bull technology by Atos

X816 compute box

- 16 sockets
- Up to 448 cores
- 192 DIMMS, up to 24TB
- Up to 40 PCIe slots

X832 compute box

- 32 sockets
- Up to 896 cores
- 384 DIMMS, up to 48TB
- Up to 80 PCIe slots

BullSequana X800 E5 specifications

Form factor	Rack-mounted 2U compute box – 1, 2, 4, 8 or 16 compute boxes can be interconnected
Processors	2x Intel® Xeon® processors Scalable Family (codenamed Skylake) per 2 socket compute module Up to 56 cores per 2 socket compute module
Architecture	C620 Intel® chipset. All processors interconnected by Intel® UPI
Memory	24 DIMM slots per 2 socket compute module (12 DIMMs per socket) supporting up to 24 latest generation ECC DDR4 DIMMs – ready for future memory technology. Support of the highest available memory transfer rate
Expansion slots	5x PCIe Gen3 slots available on each compute 2 socket module. 2 types of extension boxes: Single slot hot-plug box including one PCIe x8 Gen3 connector Double slot hot-plug box including one PCIe x16 Gen3 connector 1x PCIe Gen3 internal optional slot to pilot internal disks options (3.5", 2.5" or NVMe)
External storage devices	Up to 8 front side hot swappable 2.5" disks or SSD (2x per DFM: Disk Fan Module)
Internal storage devices	4x hot swappable internal optional 3.5" disks or 12x hot swappable internal optional 2.5" disks or 6x NVMe drives. One optional internal PCIe drive controller card
GPUs	2x optional Pascal or Volta GPUs exclusive to internal storage devices
Network	2x 1GbE port RJ45 per compute module 2x 10GbE port SFP+ per compute module
I/O ports	3x USB3 ports 1x VGA per compute box, 1x USB2 for COM port.
Management	BMC (IPMI 2.0 with virtual media support via LAN)
Power supply	2x 2000 Watt Hot Plug PWS 1+1 per module - 80PLUS Platinum, efficiency 94%
Cooling	8x Fans in 4 DFM (Disk Fan Module)
Physical specifications	89 x 437 x 803 mm (HxWxD) - 89 x 437 x 850 mm (HxWxD with bezel)
OS compatibility	Red Hat Enterprise Linux and Bull Supercomputer Suite 5
Regulatory compliance	Safety (EC, IEC, UL, CSA certifications); Electromagnetic Compatibility (EC, FCC, ICES-03, VCCI certifications), Environment (RoHS II & WEEE directives, REACH regulation)

More information:
atos.net/BullSequana-X

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