Data sheet
FUJITSU Server BS2000 SE300B and SE700B

The powerful business servers
from entry level to high performance range

BS2000 Mainframes

BS2000 mainframes have been synonymous with reliability and innovative power for more than 40 years. Focused on innovation, openness, integration, cost efficiency and continuity, Fujitsu safeguards the investments of its mainframe customers on different hardware technology platforms and at the same time ensures that market developments and the associated customer requirements can always be covered in full.

The new FUJITSU Server BS2000 SE Series

The new FUJITSU Server BS2000 SE series is the continuation and integration of technologies from the previous Fujitsu mainframe lines of the S and SQ series as regards HW features and SW functions. Designed as hybrid systems, the SE servers bring a new quality of openness and integration ability from various server and peripheral systems together with comprehensive, cross-system manageability.

As a basic element every BS2000 SE server contains a server unit, which is used as a platform for the operating system package BS2000 OSD/XC and the customer applications, which run on top. These server units are either provided as an SU /390 in classic mainframe architecture or as an SU x86 on the basis of a high-end x86 server. A significant increase in performance over earlier server lines results in a very far-reaching scalability of the BS2000 SE servers, thus enabling tailor-made configurations with high growth potential.

As an option, it is also possible to integrate further server units, additional application units and peripheral devices in SE servers. This integration offers a common view to the SE components and to these further products and enables their administration, monitoring and operation using a consistent graphical user interface.
Every SE server contains a management unit (MU) running the SE manager providing this browser based view and management functions.
LAN connections between the SE Server components and to the customer's network are realized by the SE net unit (NU) which is also a part of the SE server.

Two SE Server can be combined to a Management Cluster. In this case the administration of all components of both SE Server is possible. In a suitable configured Live Migration Cluster for a /390 as well as for a x86 server unit a running BS2000 guest system can be moved from one SU to another without interruption. This can be used e. g. to move a running application to a second server in case of maintenance. Also load balancing between two servers is possible without any affect for the user.
With automation functions individually adapted for the customer beyond that Fujitsu offers high availability services. With that in the SE cluster alliance it is possible to provide the customers application again very quickly in case of a previous break down.

Features and benefits of SE servers

Main features	Benefits
Server Units ■ SU700B based on /390 technology, clear increase in monoprocessor and overall performance, new high-performance I/O system with 8 Gbit/s Fibre Channel channels ■ SU300B based on x86 Intel technology, several SU300Bs possible in one server, object-compatible to /390 applications	■ Business flexibility due to easy upgrading, i.e. performance as required ■ High productivity and quality levels for mainframe operation ■ Coverage of growing performance demands in the mid to upper performance range. ■ Optimal utilization of resources on the respective platform
Application Units ■ Use of Linux and Windows applications on high-end x86 servers, which are integrated in the SE server	■ Very stable operation of customer applications due to the use of redundant components as well as the quality assurance and service concept of the SE servers, which is extended to cover application units. ■ Ideal AU adaptation to the application to be run due to flexible sizing and the use of both native and virtualized operating systems. ■ Overall picture of all units, clusters and virtual machines through integration into the SE Manager. ■ Common service concept including remote service for AUs and the other SE units.
Management Unit with SE Manager ■ Modern browser-based graphical user interface ■ Uniform interface for administration, monitoring and operation ■ Overview of system components	■ Single point of operation ■ User-oriented IT management ■ Efficient distribution of applications ■ Optimum cost control and efficiency
Variety of uses ■ Classic mainframe usage ■ Support of various operating systems and platforms in one server ■ Parallel use of BS2000 and x86 applications	■ Excellent security and service concept for the highest standards ■ Identical runtime environment for production, as well as testing and development
Complete package ■ All the components of the SE servers and the additionally integrated devices are preconfigured and tested as a complete package ■ Combination of mainframe and open world technology ■ Best-fit platform for every mainframe application	■ Low operating and administration costs, excellent automation features. ■ Flexible and comprehensive response of the customer to current and future market trends ■ Cost-efficient optimization through the use of the best possible platform for production and T&D applications
Management Cluster and Live Migration Cluster ■ Two SE Server can be combined in a Management Cluster . Monitoring and Administration of all Units in both Server is done on one monitor in one browser window. ■ Live Migration moves guest systems without interruption to the other server in the LM Cluster.	■ Simplified operation of all units in two SE Servers. ■ Operating state of all components at a glance. ■ Offline-maintenance on a server while the productive applications still run without interruption. ■ Load balancing between two SE Server without any effect to the productive applications.

Structure and functions of SE servers

The figure shows a schematic view of the structure of an SE server.

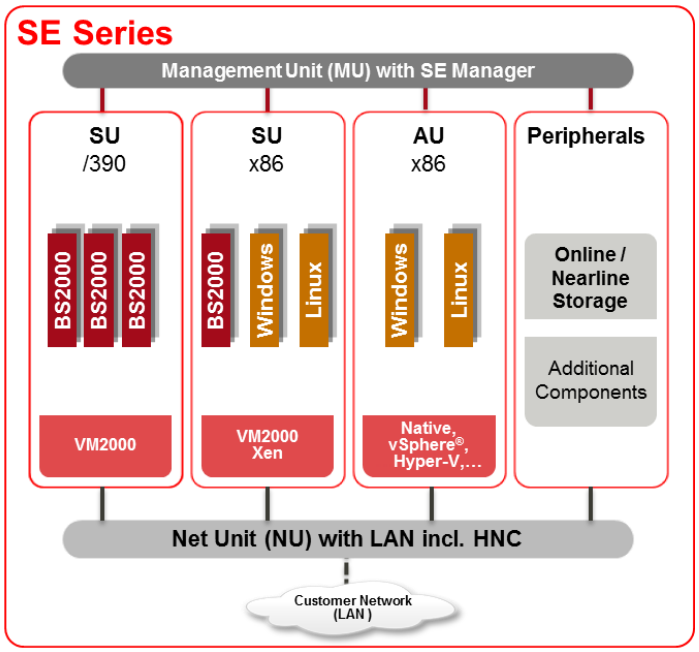
The central components of an SE server are the 1-3 server units (SU), on which the operating system package BS2000 OSD/XC (native or in VM2000 guest systems) and the customer applications run.
An SE server SE700B always includes a **Server unit SE700B** based on /390 mainframe technology. As an option, it can also have one or two SU300B server units on the basis of x86 processor technology. Additional server units with /390 technology are not offered in the same SE server.
An SE server SE500B like the SE700B contains a Server unit based on /390 mainframe technology. The SE500B is available on special release only. SE500B and SE700B differ in terms of capability and upgradability of the Server Unit /390, but they are composed in the same way and offer the same features.

An SE300B SE server always includes an **SU300B server unit** based on /86 mainframe technology. As an option, it can also have one or two further SU300B server units. The SU300B of a SE300B is based on a new hardware generation with the same performance values for all sever models Server units with /390 technology cannot be used in SE300B.

Application units (AU), which are based on x86 technology and differ in hardware features of the respective basic model, are optional. Hypervisors such as VMware vSphere® or OVM, operating systems like Linux or Windows and customer applications that use these systems run on the AUs.
As an option, you can also install a series of peripheral devices (disk and tape), e.g. ETERNUS DX600, in the SE server.

All these components are managed by the **management unit** (MU). The SE Manager (SEM) with its modern browser-based GUI enables the joint management of all units under a common interface. In SE300B and SE700B the MU is based on a new hardware generation.

Connecting all units to each other and to the customer network is made possible by the **net unit** (NU), which consists of LAN switches and implements the networks required to operate the SE server. These networks are connected to the customer networks by means of uplinks in the switches. The basic configuration of the net unit takes place during system installation in the factory.
As a result of their isolation private, internal SE networks increase the security of network operations and enable high-performance data throughput regardless of any faults in the customer network. The simple configuration of internal server data connections increases the flexibility significantly.
As with the S-Servers, the LAN connection of an SU700B is implemented by means of a new high-speed Net Connect (HNC), which is then regarded as an integral part of the net unit. In the SE700B the HNC is based on a new hardware generation.
An Extension of the Net Unit with 10 GBit/s bandwidth per port for internal and external data connections is offered as an option.



Beside the net units data and management network, a connection of the customer network to the SE server is possible via LAN controllers inside HNC, SU x86 or AU. This enables fast data connections with 10 Gbit/s directly into the customer network without the10 Gbit/s NU extension for SE servers.

All the components of the SE servers are supplied in a system rack. If additional space is required for optional server units, application units, peripherals or other components, the system rack can be supplemented with up to three expansion cabinets. Depending on the overall configuration of the system, further components may also be necessary for these additional units, e.g. additional or larger-scaled net units.
The parts of an SE server offer the same lifecycle: Server Unit, Net Unit, Managemnent Unit and all of their components are released together and will reach their common end of service.
To offer additional components like application units, SU x86 in SE700B or new peripherals in time, these products have their own lifecycle; their release date and end of service date may differ from the SE server dates.

With the release of SE300B and SE700B Servers the following functional extensions of SE software V6.2 are offered:

- Extension for MU redundancy
- Management Cluster
- Live Migration Cluster
- Audir- and Eventlogging with alarm functions
- LDAP integration of SE Manager
- Support of SAM Nodefiles in OSD/XC V11.0
- Extended support of AUs (AU25M4, AU47M3 and AUQ38E)

SE Server Unit SU700B

Compared to the previous system S210, the SU700B server units are characterized by a newly developed processor module with 8 BS2000 CPUs. An SU700 has one or two system boards - each with one of these processor modules. Depending on the configuration of the SU700B, one or all the CPUs of this module(s) are active.
The 8 CPUs of a system board now share a joint 2nd-level cache of 24 MB. Furthermore, the memory accesses within a system board are accelerated by the memory controller integrated in the processor chip. On the whole, both the monoprocessor performance and the performance of the SU700B with several BS2000 CPUs have been greatly improved compared with the previous generations S200 and S210.
The I/O system of the SU700B has been redesigned. The Fibre Channel channels now offer a significantly increased throughput of 8 Gbit/s and are installed in channel boxes, which are connected to the IOPs on the system boards via PCIe. It is now also possible to address up to 4096 devices (LUNS) instead of the previous 256 for each channel path of a control system.
Up to 15 CPUs are supported in a VM2000 guest system on an SU700B.
All SU700B models are equipped with a standby processor which is activated dynamically if a processor fails and serves as a replacement for the defective processor. The applications can continue running without any interruption and without reduction in performance.
The optional CoD (Capacity on Demand) feature can be used to temporarily attach or detach additional CPUs without any system interruption. This enables the available performance to be flexibly matched to the changing needs of the application.
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Model upgrades can easily be performed onsite.

The SU700B models support programs using virtual 31 or 24-bit addresses as well as ESA data spaces. The Real Address Extension Feature is used to convert virtual data addresses (31-bit) with hardware support into extended real addresses (40-bit) of the main memory. This enables memory expansion of up to 256 GB in the SE700B servers and also makes it possible to run several applications in parallel with large address spaces without any performance bottlenecks caused by intensive paging.

The network connection (LAN) of SE700B servers is implemented via the redundant net unit and one to four HNCs, of which one is already included in the server's basic configuration.

The management unit, which also provides the functionality of the external service console processors (SKP 3970) that were needed in previous business servers, is used for the operation, monitoring, administration, diagnostics and service of the SE700B business servers.
Remote service for SE servers is implemented via AIS Connect, which is integrated in the management unit.
A management unit is already included in the basic configuration of the SE700B.

The new modular design of the SE700B with a system cabinet on a standard rack basis saves considerable space and energy, while at the same time allowing additional components, such as the net unit, HNC and management unit to be integrated.

The following table describes the basic configuration of the /390 server unit in the various SE700B models:

Basic configuration SE700B

Model	Number of BS2000 processors[1)]	Number of system boards [2)]	Main memory in the basic configuration	Number of channel boxes[3)]	FC channels[3)]
SE700B-20	2	1	12 GB	2	14
SE700B-30	3	1	16 GB	2	14
SE700B-40	4	1	24 GB	2	14
SE700B-50	5	1	24 GB	2	14
SE700B-60	6	1	32 GB	2	18
SE700B-70	7	1	32 GB	3	18
SE700B-100	10	2	48 GB	3	22
SE700B-120	12	2	48 GB	3	22
SE700B-140	14	2	64 GB	3	22
SE700B-150	15	2	64 GB	3	22
SE700B-160[4)]	16	2	64 Gb	3	22

1) All SE700B models except SE700B-160 are also equipped with a spare processor ("Hot Spare CPU")
2) Each system board has 2 IOPs, up to 8 BS2000 CPUs and up to 128 GB main memory.
3) Up to 8 channel modules, each with 2 FC channels, can be installed in each channel box; exception: the first slot in the first channel box is used by the system. Up to 8 channel boxes and up to 126 FC channels can be configured in an SE700B.
4) Available as special release only

SE Server Unit SU300B

The basis of the new SU300B server unit is formed by a high-end x86 server with two or four Intel® Xeon® E7-8867 V4 processors with 18 cores and a frequency of 2.4 GHz. In addition to very high performance and scalability, this processor family also offers the best RAS features. As with the SQ business servers, an additional firmware layer from Fujitsu ensures both the running of BS2000 OSD/XC on these servers and the fully object-compatible support of BS2000 customer applications. Under VM2000 up to 32 BS2000 guest systems can be used on one SU300B.
It is also possible to run Linux and/or Windows as Xen guest systems parallel to BS2000 / VM2000 on the SU300B.
And finally, the SU300B firmware also provides the connection of the necessary peripherals for BS2000 and the XenVM systems.

The SU300B has and supports the following components and features:

Processor

- Two or four Intel® Xeon® E7-8867 V4, 18 cores, 2,4 GHz

Main memory

32 GB to 1504 GB on 2 to 8 memory boards, built of the following DIMMs (mixing is possible, max. 512 GB released at present):

- 16 GB (2 modules 8 GB) DDR4, registered, ECC, 2,400 MHz
- 32 GB (2 modules 16 GB)DDR4, registered, ECC, 2,400 MHz

PCIe slots

In the case of 2 processors:

- 3x PCI-Express Gen3 x 8, ½ length
- 1x PCI-Express Gen3 x16, ¾ length

In the case of 4 processors:

- 8x PCI-Express Gen3 x 8, ½ length
- 2x PCI-Express Gen3 x 16, ¾ length

One of these slots is used for a 4-port, 1 Gbit/s Cu controller; 2 of these ports are always used to connect the BS2000 systems to the net unit. 2 further ports are optionally required to connect Linux/Windows guest systems to the net unit. This 2 ports are free for customer individual use in case no Linux/Windows guest systems running on the SU. If the net unit is designed to be redundant, an additional 4-port, 1 Gbit/s Cu controller is necessary.

SU300B models with one BS2000 processor have 2 or 4 physical processor chips; as an option, the 2 chip models can - without changing the BS2000 performance - be upgraded with 2 further processor chips, thus enabling the use of more PCIe slots.

Supported PCIe controllers

- Fibre Channel: 2 ports, 8 Gbit/s and 2 ports, 16 Gbit/s
- Ethernet: 4 ports, 1 Gbit/s, Cu
  2 ports, 10 Gbit/s, including 2 SFPs
  2 ports, 10 Gbit/s, Cu
- SAS RAID: 8 ports, 12 Gbit/s for ETERNUS JX40 S2
- SAS: 8 ports, 12 Gbit/s for ETERNUS LT40

Disks, drives and others

- 4 integrated RAID-SAS 2.5" system disks with 600 GB each, mirrored in pairs, hot-pluggable
- DVD-RW writer
- 8 hot-plug fans (redundant)
- 4 hot-plug power supplies per1600 W (phase redundant)

Interfaces and onboard controllers

Available for internal server use:

- VGA: For connection to KVM
- SATA: For DVD writer
- SAS RAID: For system disks
- iRMC: Integrated Remote Management Controller
- LAN: 2 x 10/100/1000 Mbit/s Ethernet

Internal server peripherals (optional)

- Storage subsystem ETERNUS JX40 S2 (SAS RAID):
  For technical data see the ETERNUS JX40 S2 data sheet
- Magnetic tape cartridge system ETERNUS LT40 S2 with:
  1-2 drives LTO5/SAS or
  1-2 drives LTO5/FC or LTO6/FC
  For technical data see the ETERNUS LT40 S2 data sheet

These peripheral systems can only be used by SU300B or AU, but not by SU700. Their lifecycle corresponds to the SU300B lifecycle.

The following table describes the basic configuration of the first x86 server unit in the various SE300B models.
The same basic configuration is available for up to two additional SU300B-xxx server units that can be used within SE300B or SE700B as an option.

Basic configuration SE300B

Model	BS2000 CPUs	Processor chips / Cores in the basic configuration 3)	Main memory [GB]in the basic configuration/netto for BS2000 1)	Recommended Main memory for BS2000 incl. JIT [GB] 2)	PCIe slots in basic configuration
D:SE300B-10A	1	2 / 36	32 GB	16	4
D:SE300B-10B	1	2 / 36	32 GB	16	4
D:SE300B-10C	1	2 / 36	32 GB	16	4
D:SE300B-10D	1	2 / 36	32 GB	16	4
D:SE300B-10E	1	2 / 36	32 GB	16	4
D:SE300B-10F	1	2 / 36	32 GB	16	4
D:SE300B-20A	2	4 / 72	64 GB	24	10
D:SE300B-20F	2	4 / 72	64 GB	24	10
D:SE300B-30F	3	4 / 72	64 GB	24	10
D:SE300B-40F	4	4 / 72	64 GB	24	10
D:SE300B-50F	5	4 / 72	64 GB	24	10
D:SE300B-60F	6	4 / 72	64 GB	24	10
D:SE300B-80F	8	4 / 72	64 GB	24	10
D:SE300B-100F	10	4 / 72	96 GB	32	10
D:SE300B-120F	12	4 / 72	96 GB	32	10
D:SE300B-160F	16	4 / 72	96 GB	32	10

1) If several guest systems are used on SU300B, the memory of the basic configuration must be suitably extended. When dimensioning a memory extension, the fact that approx. 25% of the memory, but at most 16 GB, is used by the SU300B firmware and about 40% of the rest for BS2000 guest systems is needed for the JIT should be taken into account. Thus, the BS2000 net memory is about 45% of the total memory.
2) The memory uesd in sum for the BS2000 native or guest systems (incl. JIT)is configured in X2000. The recommended value for the specific model is shown here. Extensions up to the maximal BS2000 memory but not more than 496 GB iare possible.
3) Nevertheless, in some cases the models with only one BS2000 CPU contain 4 processor chips, 64 GB main memeory and 10 PCIe slots.

System software for SE Server Units SU300B and SU700B

BS2000 Operating system	BS2000 OSD/XC V11.0 native or virtual or BS2000 OSD/XC V10.0 native or virtuell or BS2000 OSD/XC V9.5 native or virtual (no support for LM)
VM2000 (optional)	VM2000 ab V11.0, V11.5 or higher for Live Migration needed
X2000 (for SU300B)	X2000 V6.2 as part of the Server Unit SU300B is installed on the SU and delivered without extra order. X2000 V6.2 supports both, SU300 and SU300B
Xen guest systems (for SU300B)	Microsoft Windows Server 2008 R2 or higher Suse Linux Enterprise Server as of SLES 11 (Usage within Xen V4.4 of SLES 11 SP4)

Management Unit MU M2

- 19" rack module (1HE)
- 2 Processors Intel® Xeon® E5-2609v3 6C/6T 1.70GHz 15MB
- 32 GB main memory
- 4 integrated RAID SAS 2.5" system disks with 300 GB each, mirrored
- RAID Ctrl LSI MegaRAID SAS3108SAS 6G 8 internal ports (LSI2108)
- DVD-RW supermulti slimline SATA writer
- 4 hot-plug double fans (redundant)
- 2 redundant power supplies with 450 W each

Interfaces and controllers (only for internal server use):

LAN	2 * 1Gbit/s Ethernet controller onboard
VGA	For connection to KVM
SATA	For the DVD writer
SAS RAID	For the mirrored system disks
iRMC	Integrated Remote Management Controller
FC	-

- One FC controller is necessary if a Quantum Scalar library is to be controlled via ROBAR on the MU.
- As an option, a second management unit can be used. Therefore one FC connection to the configuiration raw device is necessary; recommended is a 2-path connection to the CRD for each MU.

Software for the Management Unit

- MU software:
  M2000 V6.2 as part of the Management Unit MU M2 is installed on the MU and delivered without extra order.
- M2000 V6.2 supports both, MU M1 andMU M2.

- Add-on packs (for versions please see the release notes):
  - StorMan is part of the basic configuration of the SE server; if required by new peripheral devices, newer StorMan versions should be retrofitted later.
  - openSM2 web interface to measure performance, optional, part of openSM2 (BS2000)
  - ROBAR Server to control the tape library, optional
  - open UTM WebAdmin to administer openUTM, optional
  - SEHABASIS to implement a high availability solution (service offering)

Net Unit (NU)

- LAN switch ICX6450 with 24 or 48 10/100/1000 Mbit/s ports RJ45
- A redundant additional switch is part of the basic configuration for SE700B, but optional for SE300B.
- The net unit is connected to every server or application unit in the SE server via their onboard and PCI controllers (pre-configuration in the factory).
- 4x 1/10 Gbit/s SFP/SFP+ ports for stacking of net unit extensions and ISL-E connections between two Nus in a Cluster.
- 1 Gbit/s Cu ports (untagged) as uplinks to the customer data network, the administration network and a separate operator network (optional).

Net Unit 10Gbit/s Extension (optional)

- LAN-Switch ICX7750 with 48 Ports for 10Gbit/s SFP+ controller (optical cable). Basic configuration NU and extension NU connected via 1 Gbit/s (SFP Twinax).
- Redundancy of the 10Gbit/s NU Extension as option; 40 Gbit/s connection between 10Gbit/s NU extension (QSFP+ Twinax).
- Redundant connection of Server - and Application Units via 10Gbit/s SFP+ controller with optical cable to each ICX7750 Switch possible.
- Preparation of a 10Gbit/s Uplink into the customer's data networks for every 10Gbit/s public network..
- SFP+ controller for more connection have to be ordered extra.

High-speed Net Connect HNC M2

- Every SE700 server is supplied with a HNC, which is connected to the net unit. A further 1-3 HNCs can be configured to increase throughput and redundancy as well as for additional LAN ports.
- Processor Intel® Xeon® E5-2609v3 6C/6T 1.70GHz 15MB
- 32 GB main memory
- 2 integrated RAID SAS 2.5" system disks with 300 GB each, mirrored, hot-pluggable
- RAID Ctrl SAS 6G 8 internal ports (LSI2108)
- DVD-RW supermulti slimline SATA writer
- 4 hot-plug double fans (redundant)
- 2 redundant power supplies with 450 W each

Interfaces and controllers (only for internal server use)

LAN	2 Gbit/s Ethernet controller onboard
VGA	For connection to KVM
SATA	For the DVD writer
SAS RAID	For the mirrored system disks
iRMC	Integrated Remote Management Controller
FC	1x FC Ctrl 8Gbit/s 2-channel LPe12002 MMF LC

- As standard, a HNC is directly connected to an FC port of the SE700B via a single path; as an option, a second FC connection is possible, increasing redundancy and capacity.
- The connection to the net unit is via the two ports of an Ethernet controller with four ports, 1 Gbit/s, Cu. This controller is part of the integrated HNC and of the first additional HNC for redundancy.
- The following additional Ethernet controllers can be configured:
  - 4-port, 1 Gbit/s, Cu
  - 2-port, 10 Gbit/s, including 2 SFPs
  - 2-port, 10 Gbit/s, Cu

  Max. 2 ethernet controllers per HNC are possible.

Software for the HNC:

- HNC software: HNC V6.2 is installed on the HNC and delivered without extra order.
- HNC V6.2 supports both, HNC M1 and HNC M2.

Application Unit AU87E2 (optional)

- High-end x86 server, based on PRIMEQUEST PQ2800 E2
- 2 – 4 system boards for je 1 - 2 Intel® Xeon® E7-8800 v3 processors
- Up to 8 processors with up to 144 cores
- 1 -12 Memory module per CPU, up to 12 TB main memory per system
- 1 – 4 I/O units with 2 LAN ports each and 3 PCIe slots per 10Gbit/s I/O Unit resp. 4 PCIe slots per 1 Gbit/s I/O Unit
- 3 – 6 power supplies, free slots filled up witf fans
- For an AU87 the physical partitioning for up to 4 partitions is possible. Extended partitioning is not supported.
- For more information see PQ2800 E2 data sheet
- Each AU requires a performance-related number of integration lisences
- Max. 5 AU87 per SE Server

Database Unit DBU87E2 (optional)

- High-end x86 server, based on PRIMEQUEST PQ2800 E2
- The base system is an AU87E2 with fixed hardware configuration (SB, CPU, memory, I/O Units, controller, ...). The DB Unit is customized in relation to the customer specific database application and required performance.
- The DB Unit contains the customer specific software configuration and the required service related to preparation and maintenance of the system base for the database environment as requested from the customer.
- For the DB Unit also a performance-related number of integration lisences is required.

Application Unit AUQ38E (optional)

- High-end x86 server in a 7U housing, based on PRIMEQUEST PQ3800E
- 2 - 4 system boards for 2 processors each
- Up to 8 Scalable Intel® Xeon® Platinum processors, up to 224 cores
- 24 DDR4 DIMM slots per system board, up to 12 TB main memory in total
- 2 Management Boards, 1 - 4 I/O Units, 1 - 4 Disk Units, up to 16 PCI Express V3.0 slots, expandable by PCIe boxes
- 6 power supplies, 6 hot-plug fans
- AUQ38E can be subdivided into up to 4 physically separate partitions. Extended partitioning is not supported.
- For more data see PRIMEQUEST PQ3800E data sheet
- A performance-related number of integration licenses is required for each AU
- Max. 5 AUQ38E per SE server

Database Unit DBU38E (optional)

- High-end x86 server, based on PRIMEQUEST PQ3800E
- The base system is an AUQ38E with fixed hardware configuration (SB, CPU, memory, I/O Units, Disk Units, controller, ...). The DB Unit is customized in relation to the customer specific database application and required performance.
- The DB Unit contains the customer specific software configuration and the required service related to preparation and maintenance of the system base for the database environment as requested from the customer.
- For the DB Unit also a performance-related number of integration lisences is required.

Application Unit AU47M2 (optional)

- High-End x86 Server, based on PRIMERGY RX4770 M2
- System board for 2 or 4 Intel® Xeon® E7-4800/8800 v3 processors
- 2 - 8 memory boards for 12x DDR4 LV DIMM modules each
- 8 slots for hot-plug 2.5" SAS/SATA HDD/SSD
- 8 hot-plug fans (7 + 1 redundancy)
- 4 power supplies (redundancy)
- DVD-RW writer
- 4 / 10 PCI express slots depending on configuration (2 / 4 CPUs)
- For more details see the RX4770 M2 data sheet
- Each AU requires a performance-related number of integration lisences
- Max. 7 AUs per SE server

Application Unit AU47M3 (optional)

- High-End x86 Server, based on PRIMERGY RX4770 M3
- System board for 2 or 4 Intel® Xeon® E7-4800/8800 v4 processors
- 2 - 8 memory boards for 12x DDR4 LV DIMM modules each
- 8 slots for hot-plug 2.5" SAS/SATA HDD/SSD
- 8 hot-plug fans (7 + 1 redundancy)
- 4 power supplies (redundancy)
- DVD-RW writer
- 4 / 10 PCI express slots depending on configuration (2 / 4 CPUs)
- For more details see the RX4770 M3 data sheet
- Each AU requires a performance-related number of integration lisences
- Max. 7 AUs per SE server

Application Unit AU25M1 (optional)

- Dual socket x86 rack server, based on PRIMERGY RX2530 M1 with long lifecycle option
- System board for 1 or 2 Intel® Xeon® E5-2600 v3 processors
- 1 - 2 memory boards for 12x DDR4 LV DIMM modules each
- 4 or 8 slots for hot-plug 2.5" SAS HDD/SSD
- 4 hot-plug fans per CPU
- 2 power supplies (redundancy)
- DVD-RW writer
- 4 PCIe Gen3 slots
- For more details see the RX2530 M1 data sheet
- Each AU requires a performance-related number of integration lisences
- Max. 7 AUs per SE server

Application Unit AU25M4 (optional)

- Dual socket x86 rack server, based on PRIMERGY RX2530 M4
- System board for 1 or 2 Scalable Intel® Xeon® processors (Bronze, Silver/Gold/Platinum)
- 12x DDR4 DIMM slots per processor for 8 GB to 3.072 GB memory
- Up to 8 hot-plug 2.5" SAS HDD/SSD
- 4 hot-plug fans per CPU
- 2 power supplies (redundancy)
- DVD-RW writer
- 4 PCIe Express V3 slots (3, if only 1 processor is mounted)
- For more details see the RX2530 M4 data sheet
- Each AU requires a performance-related number of integration lisences
- Max. 7 AUs per SE server

Software for Application Units

For AU25 and AU47 the following software supported

- SUSE Linux Enterprise Server
- Red Hat Enterprise Linux
- Microsoft Windows Server
- VMware vSphere® ESXi
- Microsoft Windows Hyper-V Server
- Citrix XenServer
- Oracle LINUX
- Oracle VM Server

AU87 and DB87 are released only with vitualisation:

- VMware vSphere® ESXi
- Microsoft Windows Hyper-V Server
- Oracle VM Server

- The supported versions are listed in the release notes of the MU Software M2000.
- The SE Manager in sum supports the display of up to 1500 virtuell machines of the Application Units.
- More operating systems and virtualization products for use on Application Units on demand.

Installation data

SE700B Basic Configuration

SE700B System Cabinet	
Width	700 mm
Depth	1100 mm
Height	1800 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right: 700 mm
Weight	500 kg (SE700B full configuration with 2 system boards, 8 channel boxes with 8 FC channels each, 1 MU, 1 HNC, 1 NU24, rack infrastructure)
Rated voltage	200-240V±10%
Network connection options	The SE700B is connected via four 1-phase connections with a blue large CEE plug 32A. They belong to four PDUs with 8 sockets each and are part of the basic configuration. In a configuration with additional units more 1-phase connections with a blue large CEE plug 32A might be necessary, depending on the configuration. Alternatively, only these additional connections can also be configured as 1-phase connections with a blue small CEE plug, 16A or with a 3-phase connection. See below for the power consumption of optional extensions.
Power cable length	Power cable, 4 m long
Frequency	50 Hz - 60 Hz
Power consumption, max.	3,7 kVA (SE700B basic configuration with 16 CPU, 256 GB memory, 8 channel boxes with 8 FC channels each, 1 MU, 1 HNC, 1 NU24, rack infrastructure)
Heat generation, max.	13300 kJ/h
Sound pressure (LpAm)	Server Unit SU700B: 60 dB(A) See below for data of the other basic configuration components.
Operating temperature	10°C to 32°C
Standards	GS CE Class A (*) CB ROHS, WEEE

SE300B Basic Configuration

SE300B System Cabinet	
Width	700 mm
Depth	1100 mm
Height	1800 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right: 700 mm
Weight	400 kg
Rated voltage	200-240V±10%
Network connection options	The SE300B is usually connected via four 1-phase connections with a blue CEE plug 16A. Alternatively, 1-phase connections with a blue CEE plug, large, 32A or 3-phase connections can also be configured for SE300B and any of its built-in optional extensions. See below for the power consumption of optional extensions.
Power cable length	Power cable, 4 m long
Frequency	50 Hz - 60 Hz
Power consumption, max.	1,9 kVA (SE300B basic configuration with 16 CPU, 256 GB memory, 10 controllers, 1 MU, 1 NU, rack infrastructure)
Heat generation, max.	6900 kJ/h
Sound pressure (LpAm)	Server Unit: SU300B: typical 52 dB(A) See below for data of the other basic configuration components.
Operating temperature	10°C to 35°C
Standards	GS CE Class A (*) CB ROHS, WEEE

SE Optional Extensions

SE Extension Rack	This rack is used in configurations which exceed the first SE Server rack (system rack). Up to three extension racks can be used in one SE server.
Width	700 mm
Depth	1100 mm
Height	1800 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right: 700 mm
Weight	200 kg (without mounted units)
Network connection options	The electrical connections for the optional devices in the extension rack need to be configured by the customer. Available are PDUs have 1-phase connections with a blue large CEE plug (32A), 1-phase connections with a blue small CEE plug (16A) or 3-phase connections (3 x 16A). See below for the power consumption of optional extensions.

Server Unit SU300B	
Weight	approx. 46 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	1,5 kVa
Heat generation, max.	5500 kJ/h
Sound pressure (LpAm)	typical 52 dB(A)
Operating temperature	10°C to 35°C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Application Unit AU25M1	
Weight	Up to 16 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, min. / max.	120 VA / 318 VA
Heat generation, min. / max.	433 kJ/h / 1138 kJ/h
Sound pressure (LpAm)	typical 44 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Application Unit AU25M4	
Weight	Up to 16 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, min. / max.	130 VA / 890 VA
Heat generation, min. / max.	465 kJ/h / 3180 kJ/h
Sound pressure (LpAm)	typical 62 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE, Europe: CE Class A (*)

Application Unit AU47M2	
Weight	approx. 46 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	2,820 kVA
Heat generation, max.	10152 kJ/h
Sound pressure (LpAm)	typical 51 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Application Unit AU47M3	(in preperation)
Weight	approx. 46 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	2,820 kVA
Heat generation, max.	10152 kJ/h
Sound pressure (LpAm)	typical 52 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Application Unit AU87E2 (and DBU87E2)	
Weight	Configuration dependant max. 150 kg
Rated voltage range	220 - 240 V
Network connection options	Every AU87 contains 6 power supplies. This power supplies are connected to two 1-phase PDUs with a blue 32A IEC309 plug or to one 3-phase PDU with a red 32A IEC309 plug. In a configuration with additional units AU87 more PDUs like described are necessary. See below for the power consumption of optional extensions.
Rated frequency range	47 Hz – 63 Hz
Power consumption, max.	5,354 KVA
Heat generation, max.	19274 kJ/h
Sound pressure (LpAm)	typical 60 - 74 dB(A)
Operating temperature	5°C to 35°C
Standards	Global : CB, RoHS, WEEE Europa: CE Class A (*)

Application Unit AUQ38E (and DBU38E)	
Weight	Configuration dependant max. 110 kg
Rated voltage range	220 - 240 V
Network connection options	Every AUQ38 contains 4 power supplies with 16 A IEC C20 plugs and 2 power supplies with 10 A IEC C14 plugs. These power supplies are connected to two 1-phase PDUs with a blue 32A IEC309 plug or to one or two 3-phase PDU with a red 32A IEC309 plug. In a configuration with additional units AUQ38 more PDUs are necessary.
Rated frequency range	47 Hz – 63 Hz
Power consumption, max.	5,900 KVA
Heat generation, max.	21240 kJ/h
Sound pressure (LpAm)	65 dB
Operating temperature	5°C to 40 °C
Standards	Global : CB, RoHS, WEEE Europa: CE Class A (*)

Management Unit MU M2	
Weight	max. 16 kg (depends on configuration)
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	220 VA
Heat generation, max.	800 kJ/h
Sound pressure (LpAm)	minimum 35dB(A), typical 44 dB(A) both when idle and in standard operation
Operating temperature	5°C to 45 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Net Unit	24 Ports	48 Ports
Weight	approx. 4.5 kg (depends on configuration)	approx. 6.4 kg (depends on configuration)
Rated voltage range	100 – 240 V	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz	50 Hz – 60 Hz
Power consumption, max.	100 VA (non redundant) / 240 VA (redundant)	100 VA (non redundant) / 200 VA (redundant)
Heat generation, max.	180 / 360 kJ/h	240 / 480 kJ/h
Sound pressure (LpAm)	40 dB(A)	55 dB(A)
Operating temperature	0°C to 45°C	0°C to 45°C
Standards	RoHS, WEEE CE Class A (*)	RoHS, WEEE CE Class A (*)

Note: The mentioned values apply for net units consisting of one switch. Redundant net units and port extensions consist of additional switches, whose values need to be added.

Net Unit 10Gbit/s Extension	48 Ports
Weight	Configuration dependant ca. 9 kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE300B and SE700B
Rated frequency range	50 Hz – 60 Hz
Power consumption	250 VA (typical), 327 VA (maximal)
Heat generation, max.	725 kJ/h
Sound pressure (LpAm)	62 dB(A) (average values)
Operating temperature	-5°C to 45°C
Standards	RoHS, WEEE CE Class A (*)

Note: The mentioned values apply for 10 Gbit/s net units consisting of one switch. Redundant net units and port extensions consist of additional switches, whose values need to be added.

HNC M2	
Weight	max. 16 kg (depends on configuration)
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE700B
Rated frequency range	50 Hz - 60 Hz
Power consumption, max.	200 VA
Heat generation, max.	800 kJ/h
Sound pressure (LpAm)	minimum 35dB(A), typical 44 dB(A) both when idle and in standard operation
Operating temperature	5°C to 45°C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

(*) Operating class A products in residential areas:
This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

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Green Policy Innovation

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